

CHARTER TOWNSHIP OF
YPSILANTI BOARD OF TRUSTEES

Supervisor

BRENDA L. STUMBO

Clerk

KAREN LOVEJOY ROE

Treasurer

LARRY J. DOE

Trustees

STAN ELDRIDGE

HEATHER JARRELL ROE

MONICA ROSS WILLIAMS

JIMMIE WILSON, JR.

May 19, 2020

Regular Meeting – 7:00 p.m.

**Ypsilanti Township Civic Center
7200 S. Huron River Drive
Ypsilanti, MI 48197**



Charter Township of Ypsilanti

7200 S. HURON RIVER DRIVE • YPSILANTI, MI 48197

SUPERVISOR BRENDA STUMBO • CLERK KAREN LOVEJOY ROE • TREASURER LARRY DOE
TRUSTEES: STAN ELDRIDGE • HEATHER JARRELL ROE • MONICA ROSS WILLIAMS •
JIMMIE WILSON, JR.

THIS MEETING WILL BE CONDUCTED ELECTRONICALLY. PLEASE USE THE INSTRUCTIONS BELOW OR VISIT YTOWN.ORG

REGULAR MEETING AGENDA

TUESDAY, MAY 19, 2020

7:00 P.M.

1. CALL TO ORDER
2. PLEDGE OF ALLEGIANCE AND INVOCATION
3. PUBLIC HEARING
 - A. 7:00PM – RESOLUTION 2020-11, CREATION OF NEIGHBORHOOD STREETLIGHT SPECIAL ASSESSMENT DISTRICT #219 CRYSTAL POND
(PUBLIC HEARING SET AT THE APRIL 21, 2020 REGULAR MEETING)
 - B. 7:00PM – RESOLUTION 2020-12, CREATION OF NEIGHBORHOOD CAMERA SPECIAL ASSESSMENT DISTRICT #075 CRYSTAL POND
(PUBLIC HEARING SET AT THE APRIL 21, 2020 REGULAR MEETING)
4. PUBLIC COMMENTS
5. CONSENT AGENDA
 - A. MINUTES OF THE MAY 5, 2020 REGULAR MEETING
 - B. STATEMENTS AND CHECKS
 1. STATEMENTS AND CHECKS FOR MAY 19, 2020 IN THE AMOUNT OF \$312,607.34
 2. CHOICE HEALTHCARE DEDUCTIBLE ACH EFT FOR APRIL IN THE AMOUNT OF \$48,533.86
 3. CHOICE HEALTHCARE ADMIN FEE FOR APRIL IN THE AMOUNT OF \$1,183.50
 - C. APRIL 2020 TREASURER’S REPORT
6. ATTORNEY REPORT
 - A. GENERAL LEGAL UPDATE

NEW BUSINESS

1. 1st READING OF RESOLUTION 2020-10, PROPOSED ORDINANCE 2020-490, AN ORDINANCE PROHIBITING RECREATIONAL MARIJUANA BUSINESSES WITHIN YPSILANTI TOWNSHIP AS PROVIDED BY THE RECREATIONAL MARIJUANA BALLOT INITIATIVE 1 OF 2018

2. REQUEST TO APPROVE REVISIONS TO THE ENGINEERING STANDARDS AND DESIGN SPECIFICATIONS ADOPTED AND USED JOINTLY BY YPSILANTI TOWNSHIP AND YPSILANTI COMMUNITY UTILITY AUTHORITY
3. BUDGET AMENDMENT #6

AUTHORIZATIONS AND BIDS

1. REQUEST TO SEEK SEALED BIDS FOR EMERGENCY REPAIR OF A STORM SEWER PIPE AT LOONFEATHER POINT PARK

OTHER BUSINESS

BOARD MEMBER UPDATES

PUBLIC HEARING

PUBLIC HEARING

7:00PM – RESOLUTION 2020-11, CREATION OF
NEIGHBORHOOD STREETLIGHT SPECIAL ASSESSMENT
DISTRICT #219 CRYSTAL POND

Charter Township of Ypsilanti

RESOLUTION NO. 2020-11

CREATION OF STREETLIGHT SPECIAL ASSESSMENT DISTRICT #219 CRYSTAL POND

WHEREAS, the Planned Development Agreement for Crystal Pond, requires the installation of streetlights in the development. It is being requested of the Board of Trustees for the creation and establishment of special assessment district #219 for the purpose of defraying said cost of street lighting by special assessments against the property especially benefited; and

WHEREAS, the Township Clerk requested of Detroit Edison, proposed plans describing the street lighting improvement and the location of said improvements with an estimate of said costs; and

WHEREAS, on March 13, 2020 Brandon Faron of Detroit Edison Community Lighting Group prepared and submitted proposed plans to install street lighting for Crystal Pond, Ypsilanti Township, consisting of ninety (90) parcels, which said plans included, *inter alia*, the installation of **“two (2) wood poles, two (2) 6’ arms and two (2) LED luminaries with gray housing”** with the cost of said improvements being approximately:

Total Estimate Construction Cost:	\$3,417.27
Total Lamp Charge For Three (3) Years:	\$1,486.080
Contribution (Cost minus 3 years revenue):	\$1,931.19
Total Annual Lamp Charges:	\$ 495.36

WHEREAS, on April 16, 2020 the Township Clerk received notification from the Township Assessor that the cost of providing two street lights for Crystal Pond, Ypsilanti Township, consisting of 90 parcels, which said plans included, *inter alia*, the installation of **“two (2) wood poles, two (2) 6’ arms and two (2) LED luminaries with gray housing”** (construction costs of \$1,931.19 for the installation will not be included in the special assessment district and has been paid by the developer) will be **\$5.50** per parcel for a 3-year period; thereafter, said costs shall be estimated at **\$5.50** per parcel for street lighting, reflective of the current rates set by DTE as well as current electrical usage for the year,

WHEREAS, the Township Clerk has given notice to each record owner of or party in interest in property to be assessed, by first class mail, addressed to the record owner or party in interest at the address shown on the tax records, at least 10 (ten) days before the May 19, 2020 public hearing, setting forth the district affected in said petition, place and purpose of said public hearing to allow any interested person an opportunity to voice any objection which may be offered against creating said district; and

WHEREAS, the Township Clerk has also published in a newspaper of general circulation the time, place and purpose of said public hearing and the district affected thereto; and

WHEREAS, on May 19, 2020, the Charter Township of Ypsilanti held a public hearing to hear any objections which may be offered against creating said special assessment district.

NOW THEREFORE, BE IT RESOLVED, that special assessment district #219 be created for the purpose of providing two (2) streetlights for Crystal Ponds, consisting of 90 parcels.

BE IT FURTHER RESOLVED, that the Township Board accepts the plans and estimate of costs as presented by Detroit Edison for Crystal Pond, consisting of 90 parcels, which said plans included, *inter alia*, the installation of **“two (2) wood poles, two (2) 6’ arms and two (2) LED luminaries with gray housing”**

(construction costs of \$1,931.19 for the installation will not be included in the special assessment district and has been paid by the developer) will be **\$5.50** per parcel for a 3-year period; thereafter, said costs shall be estimated at **\$5.50** per parcel for street lighting, reflective of the current rates set by DTE as well as current electrical usage for the year,

BE IT FURTHER RESOLVED, that the Township Supervisor shall make a special assessment upon all the lands and premises contained herein to defray the expenses of lighting said streets.

BE IT FURTHER RESOLVED, that the Township Board shall hereinafter annually determine on or before September 30 of each year, the amount to be assessed in said district for lighting said streets and shall direct the Township Assessor to levy such amounts therein.

BE IT FURTHER RESOLVED, that when the special assessment roll has been prepared and filed in the office of the Township Clerk, before said assessment roll has been confirmed, the Township Board shall appoint a time and place when it will meet, review and hear any objections to the assessment roll.

BE IT FURTHER RESOLVED, that the Township Board shall give notice of said hearing and filing of the assessment roll in the manner prescribed by statute.

E-mailed to:
Karen Lovejoy Roe at
klovejoyroe@ytown.org
No Hard Copy to Follow

March 16, 2020

Karen Lovejoy Roe, Clark
Charter Township of Ypsilanti
7200 South Huron River Drive
Ypsilanti, MI 48197

RE: Public Street Light Special Assessment District for Crystal Pond

Karen,

Representing 76% (84 of 90 units) of the units in Crystal Pond, please accept this letter as our petition to establish a Special Assessment District (SAD) for public street lights through DTE Energy's Public Street Lighting Program for Crystal Pond.

We understand it is subject to final design, but our understanding is the work will involve installation of standard "Acorn-style" street lights in locations determined by DTE Energy throughout the community.

Please let me know if you need anything additional at this time. We know once the cost of the project has been determined, we will be invoiced for same.

Thank you and best regards,

Lombardo Homes



Gregory L. Windingland
Vice President of Development

C: Mike Radzik, Director – Office of Community Standards at mrادzik@ytown.org

Supervisor
BRENDA L. STUMBO
Clerk
KAREN LOVEJOY ROE
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Charter Township of Ypsilanti

Clerk's Office

7200 S. Huron River
Drive
Ypsilanti, MI 48197
Phone: (734) 484-4700
Fax: (734) 484-5156

May 6, 2020

«Owner»
«Owner_Address»
«Owner_city», «Owner_state» «Owner_Zip»

Re: *Public Hearing Scheduled for Tuesday, May 19, 2020 at Approximately 7:00pm for the Creation of Streetlight Special Assessment District #219 for Crystal Ponds*

Dear Property Owners:

The Charter Township of Ypsilanti Board of Trustees set a public hearing to consider the request for the creation of streetlight special assessment district #219 Crystal Ponds for the installation of two (2) streetlights.

This will include your property located at: «Property_Address»
«Parcel»

The public hearing will be held on Tuesday, May 19, 2020 at approximately 7:00p.m. and will most likely be in a virtual manner. Please check ytown.org on or after May 15, 2020 for updates on the status of the meeting. Public comments may also be sent via email to klovejoyroe@ytown.org or lstanfield@ytown.org or by postal mail and will be read at the hearing. See below for information.

The Detroit Edison lamp layout for the proposed new streetlights is located on the back of this letter.

Installation charges for the two (2) streetlights is \$1,931.19 and is being paid for by the developer. DTE has fixed the annual lamp charges for the first three (3) years, per agreement to \$495.36. This cost is divided among the ninety (90) parcels and equals \$5.50 per parcel, per year. After the third year, the costs will reflect the current rates set by DTE, as well as current electrical usage over the year.


Total estimated annual costs for the additional streetlights would be \$5.50 per parcel, per year

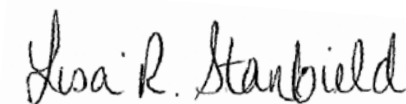
To Legally Protest the Streetlight Special Assessment:

An owner or party in interest, or his or her agent, may appear in person at the hearing to protest the special assessment in person, or may file his or her appearance and protest by letter before the hearing, and in that event, personal appearance shall not be required. The owner or any person having an interest in the real property who protests in writing at or before the hearing may file a written appeal of the special assessment with the State Tax Tribunal within 30 days after the special assessment roll is confirmed.

If you have any questions or need additional information, please feel free to contact my office.

Sincerely,


Karen Lovejoy Roe, Clerk


Lisa Stanfield, Deputy Clerk

Irs

cc: File

Exhibit A to Master Agreement


Purchase Agreement

This Purchase Agreement (this "Agreement") is dated as of March 18, 2020 between DTE Electric Company ("Company") and the Charter Township of Ypsilanti ("Customer").

This Agreement is a "Purchase Agreement" as referenced in the Master Agreement for Municipal Street Lighting dated May 7, 2018 (the "Master Agreement") between Company and Customer. All of the terms of the Master Agreement are incorporated herein by reference. In the event of an inconsistency between this Agreement and the Master Agreement, the terms of this Agreement shall control.

Customer requests the Company to furnish, install, operate and maintain street lighting equipment as set forth below:

1. DTE Work Order Number:	57002719	
	If this is a conversion or replacement, indicate the Work Order Number for current installed equipment: N/A	
2. Location where Equipment will be installed:	[Bunton Rd and Swan Lake Circle, as more fully described on the map attached hereto as <u>Attachment 1</u> .	
3. Total number of lights to be installed:	2	
4. Description of Equipment to be installed (the " <u>Equipment</u> "):	Install two (2) wood poles, two (2) 6' support arms, and two (2) 136w LED luminaires with gray housing.	
5. Estimated Total Annual Lamp Charges	\$495.36	
6. Estimated Total Annual Post Charges if selected	\$0.00	
7. Computation of Contribution in aid of Construction (" <u>CIAC Amount</u> ")	Total estimated construction cost, including labor, materials, and overhead:	\$3,417.27
	Credit for 3 years of lamp charges:	\$1,486.08
	CIAC Amount (cost minus revenue)	\$1,931.19
	Credit for Post Charge, if selected	\$0.00
8. Payment of CIAC Amount:	Due promptly upon execution of this Agreement \$1,931.19	
9. Term of Agreement	<p>5 years. Upon expiration of the initial term, this Agreement shall continue on a month-to-month basis until terminated by mutual written consent of the parties or by either party with thirty (30) days prior written notice to the other party.</p> <p>If Post Charge "box" <input type="checkbox"/> is checked the Customer agrees to following term:</p> <p>10 years. Upon expiration of the initial term, this Agreement shall continue on a month-to-month basis until terminated by mutual written consent of the parties or by either party with thirty (30) days prior written notice to the other party.</p>	

<p>10. Does the requested Customer lighting design meet IESNA recommended practices?</p>	<p>(Check One) <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p> <p>If "No", Customer must sign below and acknowledge that the lighting design does not meet IESNA recommended practices</p> <p>_____ </p>
<p>11. Customer Address for Notices:</p>	<p>Charter Township of Ypsilanti 7200 S. Huron River Dr. Ypsilanti, MI 48197 Attn: Karen Lovejoy Roe</p>

12. Special Order Material Terms:

All or a portion of the Equipment consists of special order material: (check one) YES NO

If "Yes" is checked, Customer and Company agree to the following additional terms.

A. Customer acknowledges that all or a portion of the Equipment is special order materials ("SOM") and not Company's standard stock. Customer will purchase and stock replacement SOM and spare parts. When replacement equipment or spare parts are installed from Customer's inventory, the Company will credit Customer in the amount of the then current material cost of Company standard street lighting equipment.

B. Customer will maintain an initial inventory of at least 0 posts and 0 luminaires and any other materials agreed to by Company and Customer, and will replenish the stock as the same are drawn from inventory. Costs of initial inventory are included in this Agreement. The Customer agrees to work with the Company to adjust inventory levels from time to time to correspond to actual replacement material needs. If Customer fails to maintain the required inventory, Company, after 30 days' notice to Customer, may (but is not required to) order replacement SOM and Customer will reimburse Company for such costs. Customer's acknowledges that failure to maintain required inventory could result in extended outages due to SOM lead times.

C. The inventory will be stored at _____.
Access to the Customers inventory site must be provided between the hours of 9:00 am to 4:00 pm, Monday through Friday with the exceptions of federal Holidays. Customer shall name an authorized representative to contact regarding inventory: levels, access, usage, transactions, and provide the following contact information to the Company:

Name: _____ Title: _____

Phone Number: _____ Email: _____

The Customer will notify the Company of any changes in the Authorized Customer Representative. The Customer must comply with SOM manufacturer's recommended inventory storage guidelines and practices. Damaged SOM will not be installed by the Company.

D. In the event that SOM is damaged by a third party, the Company may (but is not required to) pursue a damage claim against such third party for collection of all labor and stock replacement value associated with the damage claim. Company will promptly notify Customer as to whether Company will pursue such claim.

E. In the event that SOM becomes obsolete or no longer manufactured, the Customer will be allowed to select new alternate SOM that is compatible with the Company's existing infrastructure.

F. Should the Customer experience excessive LED equipment failures, not supported by LED manufacturer warrantees, the Company will replace the LED equipment with other Company supported Solid State or High Intensity Discharge luminaires at the Company's discretion. The full cost to complete these replacements to standard street lighting equipment will be the responsibility of the Customer.

Company and Customer have executed this Purchase Agreement as of the date first written above.

Company:

DTE Electric Company

By: _____

Name: _____

Title: _____

Customer:

Charter Township of Ypsilanti

By: _____

Name: _____

Title: _____



Attachment 1 to Purchase Agreement

Map of Location

[To be attached]

PUBLIC HEARING

7:00PM –RESOLUTION 2020-12, CREATION OF
NEIGHBORHOOD CAMERA SPECIAL ASSESSMENT
DISTRICT #075 CRYSTAL POND

CHARTER TOWNSHIP OF YPSILANTI

RESOLUTION 2020-12

CREATION OF NEIGHBORHOOD CAMERA SPECIAL ASSESSMENT DISTRICT #075 CRYSTAL POND

WHEREAS, a requirement of the planned development agreement is neighborhood cameras, the Township Board of the Charter Township of Ypsilanti proposes to install two (2) security cameras to be located at Crystal Pond and

WHEREAS, the developer has paid for the purchase and installation of the security cameras; and

WHEREAS, the Township Board proposes the creation of a special assessment district consisting of 90 parcels known as Crystal Pond, which will be benefited to defray the operation and maintenance cost of the security cameras; and

WHEREAS, the Township Board has solicited *Requests for Proposals* for the proposed project describing the security camera improvements, the proposed location of said improvements and estimated costs; and

WHEREAS, Conti Corporation, a video security company, licensed by the State of Michigan, prepared and submitted proposed plans to install, operate and maintain security cameras in public areas located within the boundaries of Crystal Pond, which consists of 90 parcels with the following estimated costs:

- Costs for purchase and installation of 2 security cameras (paid for by the developer): \$14,990.31
- Total Annual Residents' Cost for maintenance and operation of security cameras: (First three years) \$13,800.00
- Annual cost per parcel \$ 51.11
- Monthly cost per parcel \$ 4.26

WHEREAS, the plans, estimates of cost and proposed special assessment district were filed with the Township Clerk for public examination and notice of the public hearing upon the same was published and mailed in accordance with the law and statute provided as shown by affidavits pertaining thereto on file with the Township Clerk; and

WHEREAS, in accordance with the aforesaid notices, a hearing was held on the 19th of May, 2020 commencing at approximately 7:00pm and all persons given the opportunity to be heard in the matter; and

WHEREAS, as a result of the foregoing, the Township Board believes the project to be in the best interests of the Township and of the district proposed to be established therefore;

NOW, THEREFORE, BE IT HEREBY RESOLVED as follows:

1. That this Township Board does hereby approve the plans for public security cameras as prepared and presented by the Township's licensed security system contractor and its annual estimate of costs for the operation and maintenance thereof.
2. That this Township Board creates a special assessment district located within the boundaries of Crystal Pond with the district to be known as Crystal Pond Neighborhood Camera Special Assessment District No. 075 within which the costs of the operation and maintenance of the security cameras shall be assessed according to benefits.
3. That on the basis of the foregoing, this Township Board does hereby direct the Supervisor and Assessing Officer to make a special assessment roll in which shall be entered and described all the parcels of land to be assessed with the names of the respective owners thereof if known, and a total amount to be assessed against each parcel of land which amount shall be the relative portion of the whole sum to be

levied against the parcels of land in the special assessment district as the benefit to the parcel of land bears to the total benefit to all the parcels of land in the special assessment district. When the same has been completed, the Supervisor or Assessing Officer shall affix thereto her certificate stating that it was made pursuant to this resolution and that in making such assessment roll, she has, according to her best judgment, conformed in all respects to the directions contained in this resolution and the applicable state statutes.

4. When the special assessment roll has been prepared and filed in the office of the Township Clerk, before said assessment roll has been confirmed, the Township Board shall appoint a time and place when it will meet, review and hear any objections to the assessment roll.
5. If the special assessment roll is confirmed, the Township Board intends to hold a public hearing once each year in future years, on or before September 30, to reassess property in the special assessment district for the costs in the next year, and will provide notice of such hearing in such a manner as prescribed by law.
6. That all resolutions and parts of resolutions insofar as they conflict with the provisions of the within resolution be and the same are hereby rescinded.

E-mailed to:
Karen Lovejoy Roe at
klovejoyroe@ytown.org
No Hard Copy to Follow

March 16, 2020

Karen Lovejoy Roe, Clark
Charter Township of Ypsilanti
7200 South Huron River Drive
Ypsilanti, MI 48197

RE: Security Camera Special Assessment District for Crystal Pond

Karen,

Representing 76% (84 of 90 units) of the units in Crystal Pond, please accept this letter as our petition to establish a Special Assessment District (SAD) for security cameras for Crystal Pond.

We understand it is subject to final design, but our understanding is the work will involve installation of two new street lights and two security cameras, once each at the two Bunton Road entrances to the community.

Please let me know if you need anything additional at this time. We know once the cost of the project has been determined, we will be invoiced for same.

Thank you and best regards,

Lombardo Homes



Gregory L. Windingland
Vice President of Development

C: Mike Radzik, Director – Office of Community Standards at mradzik@ytown.org

Supervisor
BRENDA L. STUMBO
Clerk
KAREN LOVEJOY ROE
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JIMMIE WILSON, JR.



Charter Township of Ypsilanti

Clerk's Office

7200 S. Huron River
Drive
Ypsilanti, MI 48197
Phone: (734) 484-4700
Fax: (734) 484-5156

May 6, 2020

«Owner»
«Owner_Address»
«Owner_city», «Owner_state» «Owner_Zip»

Re: Public Hearing Scheduled for Tuesday, May 19, 2020 at Approximately 7:00pm for the Creation of Neighborhood Camera Special Assessment District #075 Crystal Ponds

Dear Property Owners:

The Charter Township of Ypsilanti Board of Trustees set a public hearing to consider the request for the creation of the request for the creation of Neighborhood Camera Special Assessment District #075 Crystal Ponds for the installation of two (2) cameras. Please see the map on the reverse side of this notice for location information.

THE TOTAL COST PER HOUSEHOLD FOR THIS YEARLY ASSESSMENT WOULD BE \$51.11 PER YEAR.

This will include your property located at: «Property_Address»
«Parcel»

The public hearing will be held on Tuesday, May 19, 2020 at approximately 7:00p.m. and will most likely be in a virtual manner. Please check ytown.org on or after May 15, 2020 for updates on the status of the meeting. Public comments may also be sent via email to klovejoyroe@ytown.org or lstanfield@ytown.org or by postal mail and will be read at the hearing. See below for information.

Installation charges for the two (2) cameras is \$14,990.31 and will be paid for by the developer. Conti Corporation and Comcast have fixed the annual charges for the first three (3) years, per agreement to \$13,800.00. This cost is divided among the ninety (90) parcels and equals \$51.11 per parcel, per year. After the third year, the costs will reflect the current rates set by Conti Corporation and Comcast.

To Legally Protest the Neighborhood Camera Special Assessment:

An owner or party in interest, or his or her agent, may appear in person at the hearing to protest the special assessment in person, or may file his or her appearance and protest by letter before the hearing, and in that event, personal appearance shall not be required. The owner or any person having an interest in the real property who protests in writing at or before the hearing may file a written appeal of the special assessment with the State Tax Tribunal within 30 days after the special assessment roll is confirmed.

If you have any questions or need additional information, please feel free to contact my office at 734-484-4700.

Sincerely,

A handwritten signature in black ink that reads 'Karen Lovejoy Roe'.

Karen Lovejoy Roe, Clerk
klovejoyroe@ytown.org

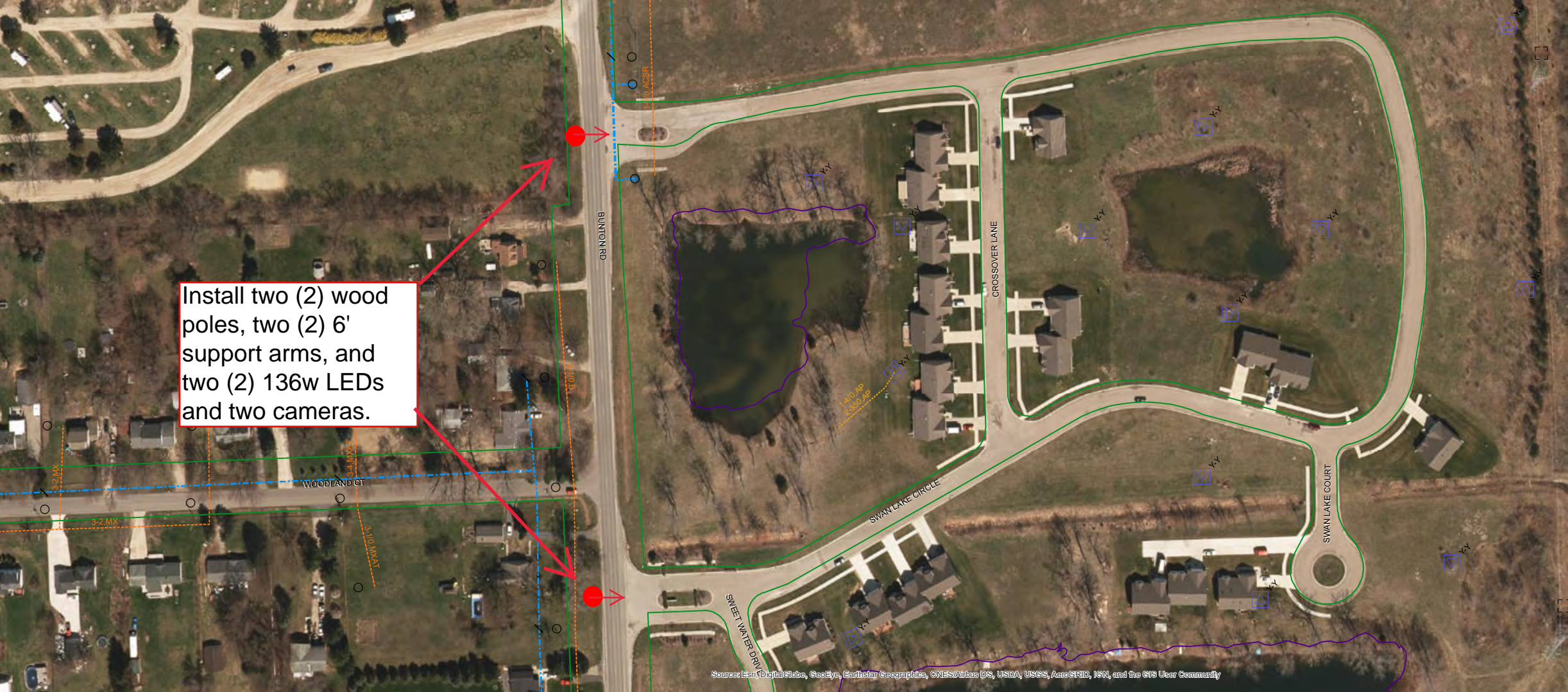
A handwritten signature in black ink that reads 'Lisa R. Stanfield'.

Lisa Stanfield, Deputy Clerk
lstanfield@ytown.org

lrs

cc: File

Install two (2) wood poles, two (2) 6' support arms, and two (2) 136w LEDs and two cameras.





william.spinek@conticorporation.com
 PHONE 248-953-7035
 6417 Center Drive, Suite 120
 Sterling Heights, Michigan 48312

April 8, 2020

Charter Township of Ypsilanti
 7200 S. Huron River Dr.
 Ypsilanti, MI 48197
 Attn: Mike Radzik

Re: The Crystal Ponds Condominium Entrances CCTV

Dear Mike,

Conti is pleased to submit our pricing for the above referenced project. Please contact me if you have any further questions regarding this proposal.

New Camera Cost – Crystal Ponds Condominium Entrances

1. Provide and install (2) Outdoor Avigilon Self-Learning Video Analytic Bullet Camera at the entrances of Crystal Ponds neighborhood
2. Provide and install (2)H4A junction box
3. Provide and install (3) pole mount adapter
4. Provide and install (3) 18x16x10 NEMA 4 Enclosure with backplate
5. Provide and install (3) NEMA 4 pole mount kit
6. Provide and install (3) 100W NEMA 4 Heater
7. Provide and install (1) 9MP 180-degree Multihead camera with IR illumination ring (Bunton Rd)
8. Provide and install (1) Pendant wall arm mounting bracket
9. Provide and install (1) 60W PoE++ injector
10. Provide and install misc. seal-tite, conduit and banding required
11. Provide and install (3) Avigilon ACC 1 channel licenses
12. Provide and install 110 outlets in NEMA 4 with breaker and electrical wire to top of the pole for DTE connection
13. Programming Static IP address into the camera (Internet service, public Static IP and router provided by others)
14. Programming and Configuration. **(Included in above price)**

Crystal Ponds Condominium Entrances Pricing

\$14,990.31 _____ Initial Acceptance

Assumptions and exclusions:

1. All work is to be performed with I.B.E.W. Local 58 Union Labor. All labor is quoted at straight time rates, no holiday, weekend or off shift time is quoted for this project
2. Only the items included within this proposal are to be provided by Conti Corporation. Any additional cameras, switches, encoders, camera licensing, or additional material requested by Charter Township of Ypsilanti will require an approved change order before that specific work can proceed.
3. Final power tap to pole power to be done by others and is not included

Upon proposal acceptance, we can schedule the installation for the earliest possible date.

Please contact me directly with any questions, comments or desired changes.

Gary Graves



Conti Corporation
6417 Center Drive, Suite 120
Sterling Heights, Michigan 48312

PUBLIC COMMENTS

CONSENT AGENDA

CHARTER TOWNSHIP OF YPSILANTI
MINUTES OF THE MAY 5, 2020 REGULAR BOARD MEETING

Supervisor Stumbo called the meeting to order at approximately 7:00 p.m. on a Zoom Virtual Board meeting. Supervisor Stumbo stated because this meeting is on Zoom we would not be able to do The Pledge of Allegiance or a moment of silent prayer.

Members Present: Supervisor Stumbo, Clerk Lovejoy Roe, Treasurer Doe
Trustees: Stan Eldridge, Heather Jarrell Roe
Monica Ross-Williams, and Jimmie Wilson

Members Absent: none

Legal Counsel: Wm. Douglas Winters

PUBLIC COMMENTS

JoAnn McCollum, Township Resident, stated she was disappointed in Clerk Lovejoy Roe and Trustee Jarrell Roe for only allowing one person to run for Township Clerk. She said she quit being an election worker because of it. She said she was happy to hear that three African Americans were running for County Commissioner for District 5 and then learned that Karen Lovejoy Roe was running for that same seat. Ms. McCollum stated we have worked so hard to be seen as a fair community and she said the Township does not need this.

Jessie Molberg said she was a former Ypsilanti Township resident and the oldest daughter of Karen Lovejoy Roe. She said because of the public persecution her mother has endured through the years she said she would never run for a public office. She said but in 2018 she was elected to the City Council in Kentucky. She said the decision to run for public office was because of her mother. Ms. Molberg stated she wanted to serve her community as she has seen her mother do her entire life as a public servant to Ypsilanti Township for almost 32 years and she has always put her residents first. She said dishonesty and deceitfulness has never been characteristic of Karen Lovejoy Roe and it isn't now. Ms. Molberg said it is her hope that the truth comes to light. She said her mothers' success has come from always being a person of integrity, which she taught all her children, despite this current political scheme slandering our family name. Ms. Molberg said as Michelle Obama has said, "When they go low, We go high".

Supervisor Stumbo read two letters from residents into the record one from Donald Hazzard and one from Arloa Kaiser (see attached).

JoAnn McCollum, Township Resident stated three candidates had their affidavits incorrectly done. She said the two candidates dropped out, it should be all three. She said a legal document was not handled correctly and Karen Lovejoy Roe should not be in that position. She stated that Heather Jarrell Roe should drop out because her affidavit was incorrect.

**CHARTER TOWNSHIP OF YPSILANTI
MINUTES OF THE MAY 5, 2020 REGULAR BOARD MEETING
PAGE 2**

Michael Richardson, Township Resident stated he was running for Trustee of the Township and just wanted to introduce himself to the board and residents.

CONSENT AGENDA

A. MINUTES OF THE APRIL 21, 2020 REGULAR MEETING

B. STATEMENTS AND CHECKS

1. STATEMENTS AND CHECKS FOR MAY 5, 2020 IN THE AMOUNT OF \$662,743.50

A motion was made by Trustee Eldridge, supported by Treasurer Doe to Approve the Consent Agenda.

Eldridge.....Yes Doe.....Yes Wilson.....Yes
Lovejoy Roe.....Yes Jarrell Roe..... Yes Stumbo.....Yes
Ross-Williams.....Yes

The motion carried unanimously.

ATTORNEY REPORT

1. GENERAL LEGAL UPDATE - none

NEW BUSINESS

1. REQUEST TO APPROVE THE FOURTH ADDENDUM WITH WASTE MANAGEMENT TO EXTEND SERVICES THROUGH SEPTEMBER 30, 2020 CONTINGENT UPON APPROVAL OF THE INSURANCE AND PERFORMANCE BOND BY THE TOWNSHIP ATTORNEY

A motion was made by Clerk Lovejoy Roe, supported by Trustee Eldridge to approve the Fourth Addendum with Waste Management to Extend Services through September 30, 2020 Contingent upon Approval of the Insurance and Performance Bond by the Township Attorney (see attached).

Doe.....Yes Wilson.....Yes Stumbo.....Yes
Lovejoy Roe.....Yes Ross Williams..... Yes Eldridge.....Yes
Jarrell Roe.....Yes

The motion carried unanimously.

2. REQUEST AUTHORIZATION TO APPROVE THE CONTRACT WITH BEST ASPHALT TO COMPLETE PHASE II OF THE GROVE RD PATHWAY IN THE AMOUNT OF \$225,869.50 BUDGETED IN LINE ITEM #212-970-000-997-007

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A motion was made by Trustee Eldridge, supported by Clerk Lovejoy Roe to Approve the Contract with Best Asphalt to Complete Phase II of the Grove Rd Pathway in the Amount of \$225,869.50 Budgeted in Line Item #212-970-000-997-007(see attached).

Michael Hoffmeister, Residential Services Director stated that this was Phase II and was part of the border to border trail. He said Phase I was completed last year and that Washtenaw County Parks pays for this project.

**Doe.....Yes Wilson.....Yes Stumbo.....Yes
Lovejoy Roe.....Yes Ross-Williams.....Yes Eldridge.....Yes
Jarrell Roe.....Yes**

The motion carried unanimously.

3. REQUEST TO APPROVE THE SECOND AGREEMENT WITH THE WASHTENAW COUNTY ROAD COMMISSION FOR LOCAL ROAD IMPROVEMENTS IN THE AMOUNT OF \$76,375.00 BUDGETED IN LINE ITEM #101-446-000-818-022

A motion was made by Clerk Lovejoy Roe, supported by Trustee Wilson to Approve the Second Agreement with the Washtenaw County Road Commission for Local Road Improvements in the Amount of \$76,375.00 Budgeted in Line Item #101-446-000-818-022 (see attached).

Supervisor Stumbo stated that Washtenaw County matches us dollar for dollar. She said this was seal coating of the roads in the Township.

**Doe.....Yes Wilson.....Yes Stumbo.....Yes
Lovejoy Roe.....Yes Ross-Williams.....Yes Eldridge.....Yes
Jarrell Roe.....Yes**

The motion carried unanimously.

4. REQUEST TO SUSPEND YPSILANTI TOWNSHIP CHIPPING OPERATIONS EFFECTIVE MAY 29, 2020

A motion was made by Treasurer Doe, supported by Trustee Jarrell Roe to Approve the Request to Suspend Ypsilanti Township chipping Operations Effective May 29, 2020.

Supervisor Stumbo said because of the pandemic they have not been able to hire seasonal help or full time chipper staff. She said the financial cost from Waste Management on the extended contract the board had approved, would cost \$300,000.00 for 90 days. She said we usually extend the contract from our current waste hauler because the increase has only been about 2-3% higher with each extended contact. Supervisor Stumbo stated that was not the case this time, it

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would be a substantial increase and that is why we are requesting competitive bids. She said Javonna Neel, Director of Accounting, stated the Environmental Services fund will exceed the millage funds by \$940,000.00. She said we need to have in depth discussions regarding cutting services or go out for a millage increase based on the forecast. She said increasing property taxes was not a bridge she wanted to cross. She said we do have branch pick up from Waste Management but there are specifications listed in our helpful handbook as to how they will be picked up and how residents must prepare the branches. Supervisor Stumbo stated residents can also go to the Compost Site and drop off their branches at no cost. She also said that in case of a storm the township would restore the chipping service to help with the clean up. Supervisor Stumbo also said that we are anticipating a \$1.2 million cut in our State Shared Revenue which comes from sales tax paid in the state. She said plans were underway to prepare for such a cut in revenue.

**Doe.....Yes Wilson.....Yes Stumbo.....Yes
Lovejoy Roe.....Yes Ross-William.....Yes Eldridge.....Yes
Jarrell Roe.....Yes**

The motion carried unanimously.

5. REQUEST FOR VOTE OF NO CONFIDENCE FOR CLERK KAREN LOVEJOY ROE

A motion was made by Trustee Ross-Williams, supported by Treasurer Doe to Approve Request for Vote of No Confidence for Clerk Karen Lovejoy Roe.

Trustee Ross-Williams said I would like to read this statement and I will make sure it is sent over to the Clerk for the record. It would give or take about 5 or 7 minutes. Unlikely to what is widely believed and way too overly accepted, being an Elected Official should focus on excel of the common good, welfare and quality of life for residents. What it should never be is about ego, self-gratification, nepotism, or what can be done for me versus we, the collective as a whole. This is not where in three years, 5 months, 15 days since taken oath of office I believed this board would be, at an impasse in the middle of a pandemic called corona virus, ever growing numbers of our citizens being impacted, local businesses closed, in lines and need for food, comfort, or financial assistance. Yet this is where we are, turning the clock backwards to the beginning. The job is to get to work, coming off the heels of a financial crisis from 2008 to 2013 that some feel and have voiced contempt of irritation when mentioned before this board when that not too distance past is reflected upon, repair what was broken, our residential housing stopped with financial crisis as stability for family and individuals by the addition of new businesses while supporting others that stayed and survived, promote strong neighborhoods in the rising activism within them to be their best. This meant to this Trustee, work together, not in silos as a board for our constituents, moving as a collective to meet in the middle, for the good of voters and those who did not vote for us. Today I am sorried, it is not for just having to sit here is this zoom conference, due to a global, nationwide, state, and local pandemic versus our Ypsilanti Township Board conference room then instead it is for having to ask for a

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vote of no confidence against Karen Lovejoy Roe. I take no joy in this what so ever, however, our duty calls, our constituents deserve it, we are public servants to operate for the citizens only, nothing more, nothing less, this board cannot allow for these actions to continue. On April 21st, 2020 at 8:00 the collective changed. That's when nepotism showed its' colors on this board, by an action some have called political gainsmanship, others are still in shock, bewilderment and outright upheaval, the term I would use is a switcharoo, was designed in nature by two individuals over the heads of 57,000 residents, some of which were discouraged to seek office themselves as to not rock the boat. It takes courage to enter a ring against a strong opponent and an incumbent, name ID sometimes take years to build, for others to know often a drop of a hat, less known, collecting the proper signatures, and funds necessary in these days and times, for literature and other marketing materials for voters to know their name. Prior to April 20th, 2020 to the average voter it appeared incumbents were re-running with their associated name ID for their current position, they held the power of the collective, power is always with the people and their leaders are their servants, today's a measure of the people taking their power back. The facts are the following, this motion to vote of no confidence against Karen Lovejoy Roe was due to Number 1, our community is in the middle of a pandemic called corona virus 2019. As of today there are 553 individuals that have been diagnosed with Covid-19 in the 48197 and 48198 area codes. Some of which have perished although our numbers are declining overall with mitigation, which is a blessing, we remain in a state of emergency in our state and our county since mid-March 2020. Our offices in Ypsilanti Township are closed, and the public and businesses are impacted, the public accessibility to their governmental clutches have been impacted, this is a fact and all public officials must be mindful of this. We are a public service that operates for the citizens only, again nothing more, nothing less, but some seem to have forgotten that fact. On April 21, 2020 two members of this board Trustee Heather Jarrell Roe and Clerk Karen Lovejoy Roe who are related colluded in an effort to pull a switcharoo, originally filing in their current positions in February 2020 then changed in those places on April 21, 2020. Although it was not illegal to do so the appearance of using nepotism to collude voters of choices in candidates should not be a practice in elections in Ypsilanti Township. There is no right to choose a successor in Ypsilanti Township, this was a statement that was allegedly said, and if you believe that Clerk Lovejoy Roe a rightful correction is solely needed and necessary as the voters in Ypsilanti Township have that right. This is Number 3, repeated errors in affidavit identity and receipt filings which are duty bound to be reviewed by the filing official in these cases the filing official in each incident was the office of Clerk Karen Lovejoy Roe, and candidates had errors in the signatory date and the notary public date. One candidate did not sign the statements and attestations. These are legal documents, as per election law, act 116 of 1954 section 168.558 which reads as follows, as varies parts therefore.

Clerk Lovejoy Roe asked Supervisor Stumbo for a point of special privilege. She said she had concerns because of the legal action that was in process, according to Trustee Monica Ross-Williams, regarding the affidavits she was going to take court action against the Clerk of Ypsilanti Township, the County Clerks' Office and the Bureau of Elections. She said in the past we have been advised that those are

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improper subjects to make comments about, and were instructed not to discuss. She said we were told that only the attorney would handle once a lawsuit was threatened. She said that historically, the attorney had advised not to have a discussion on a case, once a lawsuit was threatened.

Supervisor Stumbo stated for clarification the only action that can happen when someone is challenging a local clerks' authority in putting names on the ballot is to go to court, that was what County Clerk Kestenbaum advised as well, that's just the process.

Clerk Lovejoy Roe stated her point was that as elected officials we should not talk about a matter that would be a part of legal action, that Trustee Ross-Williams has declared she was taking publicly several times, that it was not appropriate, as our attorney had advised in the past. She said whenever a resident or developer has threatened legal action we have always been told to cease communication and tell them they can talk with the attorney.

Supervisor Stumbo told Trustee Ross-Williams she could continue.

Clerk Lovejoy Roe asked if the Attorney thought it was appropriate for the board to discuss a subject that would be filed against the Township by a Trustee.

Trustee Ross-Williams asked for a point of clarification.

Supervisor Stumbo said Trustee Ross-Williams since Clerk Roe has asked for the Attorneys opinion then she doesn't like my opinion, I will give her the Attorneys' opinion.

Clerk Lovejoy Roe stated she didn't have an objection to Supervisor Stumbos' opinion. She said it was clearly going to court from what Monica had said and she didn't know if it was appropriate for the board to discuss it.

Trustee Monica Ross-Williams said it was a legal opinion that was asked so I will wait.

Attorney Winters stated he was not aware of any legal action against anybody, the board or individual members. He said a lot of what was being discussed was a matter of public record so all board members are free to discuss as you see, as there isn't any legal action that he was aware of against anybody. He said he represents the board so he couldn't represent board members anyway.

Trustee Ross-Williams said any clarification I would have is that basically I am not doing any action against the Township as a whole. Can I continue to read my statement?

Supervisor Stumbo said yes.

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Trustee Monica Ross-Williams said, Number 1, going back to Michigan election law 116 of 1954, section 168.558 which reads as follows in parts therefore in various sections. Number 1 when filing a nominating petition, qualifying petition, filing fee or affidavit for candidacy for a federal, county, state, township, village metropolitan district or local district office in any election a candidate may file with the officer with whom a petition fee or an affidavit is filed with two copies of affidavit identity. Number 2 the affidavit identity must contain candidates' name, residential address, statement and the candidate is a citizen of the United States entitled of office sought, and a statement that the candidate meets constitutional, statutory qualifications for the office sought, other information that may be required to satisfy the officer as the identity of the candidate in which a manner the candidate wishes to have his or her name appear on the ballot. Number 4, which is in the election law, an affidavit of identity must include a statement that as of the date of the affidavit all statements, reports, late filing fees and fines required of the candidate or any candidate committee organize and support a candidates election under Michigan Campaign Finance Act 1 1976 PA 388 MCL 169.2012. 169.202 have been filed and paid and a statement that the candidate acknowledges that making a false statement in the affidavit is perjury punishable by a fine up to \$1,000.00 or imprisonment for up to 5 years or both. If the candidate files the affidavit of identity with an officer other than with the County Clerk or Secretary of State, the officer shall immediately forward to the county one copy of the affidavit of identity by first class mail, the County Clerk immediately shall forward one copy of the affidavit of identity for state and federal candidates to the Secretary of State by first class mail. An officer shall not certify to the Board of Elections Commissioners the name of the candidate who fails to comply with this section or the name of the candidate who excludes the affidavit of identity that contains false statements with regard to any information or statement required in this section or if the information including the date therefore are wrong by not being signed or/and somehow affirms by the notary public, in front of the notary public or on different dates than the notary public, the affidavit of identity are not in compliance with state law. Ignorance of the law is no excuse, what could have been done in the past and not caught are found equally of no excuse, we must do better now. Knowing better as duly elected public officials Karen. Number 4, one candidate was only disqualified after Washtenaw County Clerks' Office rightfully questioned their voter registration status specifically the candidates' home address on the qualified voter file was not in Ypsilanti Township, Michigan. Isn't your office required to check if a voter is registered in the township prior to ever appearing on any unofficial candidates list? It is within the elected duties according to state law under the office of Township Clerk in our 1,240 townships in Michigan including our own. Michigan election law again 116 1954 168.342 township office eligibility, eligibility for membership on Board of Review, Section 342 a person is not eligible to a township office unless the person is registered in a qualified election of the township for which the election is sought by the filing deadline. Section 363 oath of office, for township officers, all township officers shall before entering upon the duties of their office take and subscribe the oath provided in section 1 article 11 of the State Constitution before the Township Clerk or any other officer authorized to administer the oath and file the same with the Township Clerk who shall report the name and such oath should be administered

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without reward and certified by the officer of whom it was taken with the date taken the same. In chapter 41 the township revised statute of 1946 41.1B definitions, section 1B for this act an officer is described as the Supervisor, Treasurer, Clerk or Trustee, in section 65 it defines the Township Clerk as the 41.65 custody of the records, books, paper preservation, delivery to the successor in office accounts, accounting records, journals, and ledgers. Again section 55 of the same act the Township Clerk at each Township shall have custody of all papers of the township when another provision is made in law the Township Clerk should file and keep all certificates of oath and other papers required under the law to be filed in his or her office and shall keep all items required by law to be recorded, end quote. Number 5, the affidavit of identity in the filing have taken an oath to the following statement with each candidate filing for office in Ypsilanti Township takes an oath for, quote, I am a citizen of the United States and I meet the statutory constitutional requirements for the office sought, I swear and affirm that the facts I have provided are true, I acknowledge that making a false statement on this affidavit is perjury a felony punishable by a fine of \$1,000.00 or imprisonment of up to 5 years or both and may result in disqualification from the ballot. This is a legal statement that is signed by the candidates, affirmed by the candidates, witnessed as fact by the notary public and reviewed on the form by your office the Township Clerk, Clerk Karen Lovejoy Roe as the local filing official some of which were signed as they were reviewed by your Deputy Clerk. Not sure if some of these candidates paperwork was actually reviewed as there's errors in these documents were not caught before some of the candidates ever appeared on unofficial or official candidate lists, at the Washtenaw County Clerks' office, or how some of these candidates weren't afforded the opportunity to correct the error paperwork. Number 6, the failure to review the four affidavits of identity in receipt of filing was unknown by two of the candidates filing for office in Ypsilanti Township until well after the filing deadline of April 21st at 4:00pm or the withdraw deadline of April 24th at 5. These two candidates made a combination of public notices to withdraw their candidacy and/or emailed the office of clerk of Ypsilanti Township after learning of these errors between April 25th and April 27th. These candidates still were added onto the official list of candidates with Washtenaw County Clerks' Office by you Ypsilanti Township Clerk as the filing official. It is unsure if the other candidates know or if they knew or cared about the status of their affidavit of identity or received a filing. Number 7, in my case, Clerk Lovejoy Roe claimed IT issue was a factor in an email that sent to you on April 27th at 3:30pm was the cause of you not seeing my email request. That request for the record was sent to you as the filing official along with Township Supervisor, Brenda Stumbo, who confirmed to me she was able to see my request for the withdrawal communication. I have been aware of other candidates visiting Ypsilanti Township Clerks' Office, been made aware of other candidates who were allegedly initially given improper paperwork to filing for the offices sought which was corrected upon the candidates visiting the Washtenaw County Clerk's office. Again, the voters of Ypsilanti Township have the following rights, to expect our candidates seeking office in Ypsilanti Township are Ypsilanti Township residents, to expect the office of Clerk as a custodian of Township records to perform the duties of the office as prescribed by law, to have the Director of Elections in Ypsilanti Township, which this township has had since 2019 and Ypsilanti Township taxpayers pay the

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salary and benefits, therefore overseeing all matters as it relates to candidate filing and elections in Ypsilanti Township, or in the event of their absence his or her properly trained designee. It does not appear at this time that the Director of Elections was involved or otherwise made any of the errors noted above, to only have candidates on the ballot who have met or exceeded guidelines and requirements as described by law in the State of Michigan, to have fair and free elections and to know that the office of Clerk in Ypsilanti Township is run fairly without favoritism, nepotism, or any impartiality to any candidate seeking office in our township. At this point this Trustee does not believe this to be so. Voters have all rights to choose the candidates qualified for the ballot, the elected official in charge of this action must follow state law and make sure that this is so, this is why I'm calling for the Ypsilanti Township Board of Trustees to affirm my motion of a vote of no confidence for Karen Lovejoy Roe as Clerk. In closing I am also formally requesting the Michigan Secretary of State Office and/or if necessary the Attorney General to investigate these matters as described above in a letter to be forwarded to the respective offices and ask the Township Supervisor to consider such, thank you, respectfully forwarded Monica Ross-Williams, Ypsilanti Township Trustee and that is the end of my statement.

Myla Harris, Township Employee, Chief Steward of ASCME Local 3451, Ypsilanti Township Chapter stated that Clerk Lovejoy Roe has had resistance by having family working during the elections. She said she filed a grievance on behalf of union employees and overtime. She said she encourages township residents to go out and vote because she said this was not the type of leadership they should want to represent them.

Lee Tooson, Township Resident stated that after listening to what has happened he questions how ethical was it for Clerk Lovejoy Roe to do what she did. He said he classifies it as white privilege. He said because certainly a Black person wouldn't have a right to do that. He said he feels Ms. Roe is doing her daughter-in-law a disservice and she would get hell from the community. He said we should be better than this.

Melvin Parson said he was not a resident of Ypsilanti Township and he encouraged the Board to cast a no confidence vote against Karen Lovejoy Roe. He expressed concern by Karen Lovejoy Roe stepping into a candidacy where she will be running against three African American candidates.

Janessa Monahan, Township Resident, stated she was a black woman, a resident of Ypsilanti Township and an election worker. She said that she was in shock at what people were saying because Karen Lovejoy Roe has only shown her the upmost respect. She said for people to be questioning her integrity was baffling. Ms. Monahan encouraged all people to go out and vote and said she was standing by Karen Lovejoy Roe.

Clerk Lovejoy Roe stated that she didn't know where to begin but she said she knows, God knows and Monica Ross Williams knows her statements are full of outright falsehoods. She said that to say she didn't acknowledge Monica's email

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was not true. Clerk Lovejoy Roe said that when she received an email she could not open she went to Travis the Township IT Manager and he said that it was sent by a corrupt server. She said the email address was not an email address that Monica had ever used. She said that she sent an email to Monica at her township email address telling her that and now Monica was saying she didn't respond. Clerk Lovejoy Roe stated that she never sent an affidavit from someone that doesn't live in the township and that was a lie. Clerk Lovejoy Roe stated the grievance that Myla Harris wrote was because JoAnn McCollum, Angela Rogers, and Nancy Hare-Dickerson helped set up for the elections. She said these workers had to be certified election workers. She said to her fellow board members that the allegations before you are false and other things would come out in court. She said the decisions she made were not done alone but with counsel from the Bureau of Elections. She said it was a big deal to take someone off the ballot and if she was going to do that she was going to have legal standing to do so. She said she would leave it up to a Judge to change that ruling since the experts in the field that she contacted led to her decision. She said she would never do anything to bring darkness to the residents she serves in Ypsilanti Township. She said she would never bring darkness to her friends or her family and most importantly she would not do anything to cause a separation from her Savior, Jesus Christ, who was the Lord of her Life.

Trustee Eldridge stated he was extremely disappointed to be here discussing this. He said he had been on this board 16 years and had considered pursuing a full time spot on this board. He stated that he hadn't up until now because they were always held by an incumbent and he respects that process. He said a year ago Treasurer Doe stated he was not running for re-election. He gave anyone an opportunity to run for that seat. He said listening to Monica she said there were three candidates whose paperwork were not handled properly by the Clerks' office. He said two of them asked to be removed from the ballot. He questioned if they filed incorrectly, why their name would be on the ballot.

Clerk Lovejoy Roe stated she had no knowledge of anyone wanting to be removed from the ballot prior to the legal deadline. She said she had one candidate that asked to be removed after the deadline and she told him it was too late per the law.

Trustee Eldridge asked if the notice to be removed came prior to the submission to the County Clerk couldn't we grant those wishes. Trustee Eldridge said if the Clerk's office received those notifications before the filing was done with the County Clerk it seems there was an opportunity to grant those wishes. He said if we're following the strict letter of the law that doesn't address if there were improper filings. He said he knew both Trustee Ross and Clerk Roe brought it up differently in their statements but if the paperwork is not filed correctly does that leave discretion, if the rules says fill something out completely and correctly it seems this is a steadfast rule, not a law but a rule. He further said if we are going to follow the rule of meeting timelines to withdraw did we meet them in the case of proper filings. He said that was his only question and said he had not seen any of the paperwork.

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Clerk Lovejoy Roe stated she had no one who tried to file after the deadline. She said only one candidate had wanted to withdraw after the deadline because he thought he had filled out his form wrong. She said that after researching and talking to the Bureau of Elections the decision not to remove people from the ballot was made and to approve all the filings.

Trustee Eldridge said he did not mean to say someone tried to file after April 21st. He said if someone tried to withdraw and there was a computer glitch and it sounds like maybe we didn't open it, do we know if that was received in time and even if it wasn't and they tried to withdraw prior to April 27th could we not have allowed that and were any of the filings received on or before April 21st not filled out correctly by law the way it is required. He said the Notary Public is pretty specific and that he did not know that it allows for discretion to be made in asking other people, and he asked what is the rule, what does the law say.

Clerk Lovejoy Roe said to withdraw under election law, Chapter 168 MCL, you have to withdraw three days following the filing deadline which was April 24th at 4:00PM. She said she did not receive anything from anyone requesting to withdraw by the deadline. She said she did receive a request three or four days after the deadline from a candidate requesting to withdraw. She said she emailed him back and explained the law to him. She said in reference to the email that was snatched by the Township IT security system, it was sent way into the next week after the deadline to withdraw. She said she did not know what it was because it could not be opened. She said she sent an email back to Monica's ytown email address. She said the email that Monica used was not the township email address or server and said it was from a server that Travis McDougald, IT Director said was a corrupted server. She said she sent it back to Monica's ytown email address with a copy of the notice indicating there was a problem with her server. She said she asked Monica to resend the email from her township email address and she never heard from her. She said for several reasons including checking past historical records and with the Bureau of Elections who shared what they would do, a decision was made to not remove candidates from the ballot. She said she researched and asked the opinion of many people with more experience and at a higher level than herself to make a decision which was proper. She said it was hard to understand the motivation as to why a person would blame her because they thought they were taken off the ballot and now because she left them on the ballot they were threatening to sue the Township Clerk, the County and involve the Attorney General and the Bureau of Elections. Clerk Lovejoy Roe said her job was to go by the law and that was done in every instance.

Trustee Jimmie Wilson stated that if the Clerks' Office had information that the affidavits were not in order the candidates should be disqualified. He said he would have concern moving forward that the Clerks' Office was not doing things ethically. He said he would have to question everything that comes out of the Clerks' Office. He said he would make a motion to table this if Clerk Lovejoy Roe does what's right tomorrow morning and authorize all three candidates to be taken off the ballot. He

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said if Clerk Lovejoy Roe cannot take that vow to do that he would have no alternative than to vote yes or no confidence.

Clerk Lovejoy Roe said she respects everyone's opinion but there was confusion over what's legal and what's not legal. She said everything that was done was legal.

Supervisor Stumbo asked why Clerk Lovejoy Roe felt she needed to speak to other election officials.

Clerk Lovejoy Roe said the County sent the information back and asked if she thought there was a discrepancy. She said she consulted with other election officials including the Bureau of Elections and she said all told her the only date that mattered would be the notary date.

Treasurer Doe said over the 19 plus years he had worked with Karen Lovejoy Roe he thought she always tried to be transparent and she wanted the voters to have a choice. He said for her to sign up in March to run and then change her mind at the last hour and her daughter-in-law change her candidacy from Trustee to Clerk that was not fair to the voters or anyone that may have wanted to run for Clerk.

Trustee Ross-Williams stated she filed her documents in December and wasn't notified until April there was a discrepancy. She said if she got notice ahead of time she would have changed it. She said it is not right for her to run if her documents weren't valid. She said she found out about the discrepancy on April 25, 2020. She said if there's an error in her paperwork it's an error and she needs to withdraw.

Supervisor Stumbo stated this was hard because she and Clerk Roe have been very close for about 30 years and she said she was very close to her kids as well. She said this was not about that. She said to her it was about shining a light and being honest. She said during a health pandemic when the building was closed it appears two board members who are related conspired to make sure there was no opposition in a race. She asked if it was legal she said she didn't know but she questioned it, because the clerk does the official filing and controls that process. She said Clerk Lovejoy Roe was a person of authority and she said when you are in that position and you are over elections, that's a sacred place and people should be treated equally. She said people were not treated equal. She said when you find an error in an affidavit it should be disqualified. She said the County Clerk told her he would not accept an affidavit that was incorrect. She said he also told her the State of Michigan wouldn't accept it either. She said it was not a matter of taking someone off the ballot they were never on the ballot. She said it was up to the Clerk to make sure the documents are accurate and Clerk Lovejoy Roe failed to do that. She said she finds it ironic that Clerk Roe fought for a Director of Elections and yet that Director of Elections was not here to assist. Supervisor Stumbo stated that everyone should have a fair and equal chance to apply for an open seat and she said only Trustee Jarrell Roe and Clerk Lovejoy Roe knew of the open seat. She said she and the rest of the Board did not know the plan but if they did they would have told people. She said Clerk Lovejoy Roe has another chance to disqualify them and she would like her to consider what Trustee Wilson had suggested.

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Doe.....Yes Wilson.....Yes Stumbo.....Yes
Lovejoy Roe.....No Ross-Williams.....Yes Eldridge.....Yes
Jarrell Roe.....No

The motion carried.

6. BUDGET AMENDMENT #5

A motion was made by Clerk Lovejoy Roe, supported by Trustee Wilson to Budget Amendment #5 (see Attached).

Doe.....Yes Wilson.....Yes Stumbo.....Yes
Lovejoy Roe.....Yes Ross-Williams.....Yes Eldridge.....Yes
Jarrell Roe.....Yes

The motion carried unanimously.

AUTHORIZATIONS AND BIDS

1. REQUEST TO SEEK PROPOSALS FOR A PREFERRED NETWORK PROVIDER

A motion was made by Clerk Lovejoy Roe, supported by Treasurer Doe to Approve the Request to Seek Proposals for a Preferred Network Provider.

Doe.....Yes Wilson.....Yes Stumbo.....Yes
Lovejoy Roe.....Yes Ross-Williams.....Yes Eldridge.....Yes
Jarrell Roe.....Yes

The motion carried unanimously.

BOARD MEMBER UPDATES

Clerk Lovejoy Roe stated there were a lot of requests to be placed on the permanent absentee list. She said election workers for the August and November elections were needed. She said she would be making changes at the precincts to make sure voters are 6 feet apart and was looking for a new location for the AV Count Board because of the increase in absentee voters and the social distancing rules. Clerk Lovejoy Roe thanked God for moving us forward through this pandemic. She said as a community and a nation most are taking this serious and staying home which is helping us move forward. She said she wanted to thank Commissioner Ricky Jefferson, St. Joseph Hospital, the University of Michigan Hospital, and the Washtenaw County Public Health Department for hearing our call of this side of Washtenaw County and providing testing for our residents daily at St. Joseph Hospital and with two pop-up testing sites- one on Saturday, May 9th at the Ypsilanti Township Community Center on Clark Road and one on May 16 at the Grace Fellowship Church, Community Life Center on S. Harris Rd.

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Trustee Ross-Williams thanked the various residents who had passed out food to families in need. She thanked the Washtenaw County Sheriffs' Department who helped with the distribution of food. She said she would like for residents to continue with social distancing and wearing masks.

Supervisor Stumbo stated they are having virtual neighborhood watch meetings and that will be posted on the township website. She said that waste management will begin pick-up of one bulk item and we have restored picking up yard waste.

A motion was made by Trustee Wilson, supported by Trustee Eldridge to Adjourn.

The meeting was adjourned at approximately 9:05PM.

Respectfully Submitted,

**Brenda L. Stumbo, Supervisor
Charter Township of Ypsilanti**

**Karen Lovejoy Roe, Clerk
Charter Township of Ypsilanti**

Donald G Hazzard
1421 Melvin Street
Ypsilanti, Michigan
48198

May 4, 2020

Tilden R. Stumbo Civic Center
7200 S. Huron River Drive
Ypsilanti, Michigan 48198

Attention Ms. Brenda Stumbo

RE: Current degrading and apparent illegal and disgusting action
being taken by Township employees.

SUBJECT: The actions of Karen Lovejoy Roe, Township Clerk, and
Heather 4fJarrell Roe, Township Trustee, and daughter in law of Karen
Lovejoy Roe.

Board Meeting;

Ms. Brenda Stumbo, due to the Stay in Place situation, I would like to have
this letter read into the minutes of the May 5, 2020 Board Meeting.

The current illegal malicious manipulation of the rules and regulations
controlling the proper filing and documentation of persons for any office in
the Township are despicable and give the Township a reputation that is
sickening

I am totally against all actions that are not legal and above board, and
people that don't have the moral integrity to be in any position that requires
public trust.

Arloa S. Kaiser
1421 Melvin Street
Ypsilanti, Michigan
48198

May 3,2020

Tilden R. Stumbo Civic Center
7200 S. Huron River Drive
Ypsilanti, Michigan 48198

Attention: Brenda Stumbo Supervisor

RE: Monitoring and attempted control of elections

SUBJECT: Apparent subterfuge and collusion of Karen Lovejoy Roe, township clerk and Trustee Heather Jarrell Roe, Karen Lovejoy Roe's daughter-in-law.

Board Meeting.

Ms. Brenda Stumbo, due to the current stay in place situations, I would like to have this letter read into the minutes of the May 5, 2020 Board Meeting.

The clerk is in charge elections, so with the apparent manipulations to keep the Roe dynasty in power and actions taken by the Roe's appear to be blatant disregard of any ethical action or responsibility

I am totally against this action and would hope the Board can resolve this in a Responsible manner. And I do not believe that they should be allowed to be in any government position that requires public trust.

cc: file

FOURTH ADDENDUM

This Fourth Addendum is made and entered into as of this 6 day of May, 2020, by and between the Charter Township of Ypsilanti (“Township”) and Waste Management of Michigan, Inc. (“Contractor”).

Recitals

WHEREAS, on or about July 1, 2000, the parties entered into the following agreements: i) Residential Solid Waste Collection and Disposal Agreement (“Solid Waste Agreement”), ii) Recyclable Agreement, and iii) Yard Waste Agreement. These three agreements were amended on or about January 19, 2005 with a First Addendum, February 16, 2010 with a Second Addendum and October 22, 2014 with a Third Addendum. The Solid Waste Agreement, Recyclable Agreement and Yard Waste Agreement, all as amended by the First, Second, Third and Fourth Addendums, shall be hereinafter referred to as the “Agreements”; and

WHEREAS, the Township and Contractor now desire to amend the Agreements.

Amendments

The Township and Contractor agree to amend the Agreements as follows:

1. Term. The term of the Agreements is hereby extended for an additional three months, commencing July 1, 2020 and ending September 30, 2020. The Agreements may be extended for additional periods of time, upon mutual agreement of the parties.
2. Rates. The service rates in effect for the period of July 1, 2020 through September 30, 2020 are as follows:

Trash	\$ 8.70 per unit per month
Recycle	\$ 2.04 per unit per month
Yard Waste	\$ 2.12 per unit per month

* Recycle processing charge is in addition to above rates and is variable based on changes in recycle volume and processing cost. Township will continue to pay for recycle processing based on the current Agreement formula (Total monthly tons x processing rate + \$2.50/ton admin fee)

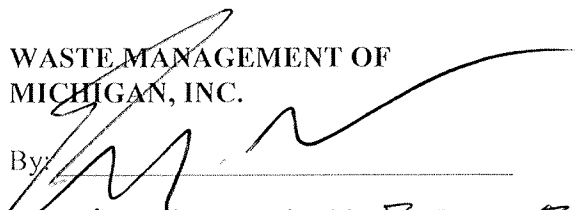
3. No Changes. Except as specifically modified herein, all other terms of the Agreements will continue in full force and effect.

WHEREFORE, the Parties hereto have executed this Fourth Addendum on the date and year first written above.

CHARTER TOWNSHIP OF YPSILANTI

By: *Diana L. Stumbo* | *K. L. De*
 Title: *Supervisor* | *Mayor Debejay*
 Date: *May 6, 2020*

WASTE MANAGEMENT OF MICHIGAN, INC.

By: 
 Title: *AREA MANAGER, PUBLIC SECTOR*
 Date: *5/12/2020*

2020 YPSILANTI TOWNSHIP SECOND AGREEMENT

THIS AGREEMENT, made and entered into this 6 day of May, 2020, by and between the Township Board of Ypsilanti Township, Washtenaw County, parties of the first part and the Board of Washtenaw County Road Commissioners, parties of the second part.

WHEREAS, the parties of the first part desire that certain improvements be made upon the local roads in the Township of Ypsilanti, and

WHEREAS, proper authority is provided to the parties of the agreement under the provisions in Act 51 of Public Acts of 1951 as amended,

IT IS NOW THEREFORE AGREED, the parties of the second part will accomplish the improvements as specified herein, all in accordance with the standards of the parties of the second part.

1. **Mott Road, Ridge Road to Wayne County line (Sec 1):**
Work to include sealcoating. This is a proposed township share project with Superior Township.
Estimated total project cost: \$ 17,500.00
Estimated project cost to Ypsilanti Township: \$ 8,750.00

2. **Washtenaw Orchard Subdivision (Sec 1, 2):**
Work to include crack sealing. Roads to include:
 - Woodruff Lane, Wiard Road to Bud Avenue
 - Bud Avenue, Woodruff Lane to Blossom Avenue
 - Blossom Avenue, Bud Avenue to end of roadEstimated project cost: \$ 7,600.00

3. **Washtenaw Concourse Subdivision (Sec 3):**
Work to include crack sealing. Roads to include:
 - Red Leaf Lane, Wendell Road to Delaware
 - Commonwealth Avenue, Wendell Road to DelawareEstimated project cost: \$ 9,100.00

4. **Hollis Road, Cross Road to Forest Road (Sec 3):**
Work to include crack sealing.
Estimated project cost: \$ 6,100.00

5. **Townsend's Subdivision (Sec 3):**
Work to include crack sealing. Roads to include:
 - Oak Road, Mohawk Avenue to Harris Road
 - Mohawk Road, Forest Road to end of road
 - Miami Road, Forest Road to end of roadEstimated project cost: \$ 7,600.00

6. **Parview Drive, Textile Road to end of road (Sec 20):**
Work to include crack sealing.
Estimated project cost: \$ 3,100.00

7. **Hubbard Avenue, Huron River Drive to end of road (Sec 21):**
Work to include heavy brushing, ditching, shaping the existing surface, placement of a 4" (C.I.P.) 23a limestone (approximately 300 tons) with associated dust control and project restoration.
Estimated project cost \$ 15,500.00
8. **Ford Lake Heights Subdivision (Sec 21, 22):**
Work to include crack sealing. Roads to include:
- Lake Crest Drive, HRD to HRD
 - Lake Crest Court, Lake Crest Drive to end of road
 - Applewood Drive, Valley View Drive to Lake Crest Drive
 - Faircrest Drive, Valley View Drive to Applewood Drive
 - Valley View Drive, Briarbrook Drive to Lake Crest Drive
 - Indian Trail, HRD to Valley View Drive
- Estimated project cost: \$ 21,100.00
9. **Smokler Textile Subdivision (Sec 22):**
Work to include crack sealing. Roads to include:
- Big Pine Drive, HRD to New Meadow Drive
 - New Meadow Drive, Big Pine Drive to Willowbridge Road
 - Crescent Lane, start of new pavement to New Meadow Drive
 - Farm Lane, start of new pavement to New Meadow Drive
- Estimated project cost: \$ 9,100.00
10. **Aspen Ridge Condominium (Sec 30):**
Work to include crack sealing. Roads to include:
- Breckenridge Drive, Munger Road to Aspen Way
 - Aspen Way, Breckenridge Drive to Boyne Drive
 - Vail Drive, Aspen Way to Breckenridge Drive
 - Boyne Drive, Textile Road to Breckenridge Drive
 - Schuss Xing, Boyne Drive to Breckenridge Drive
- Estimated project cost: \$ 42,200.00
11. **Creekside Village East Subdivision (Sec 35):**
Work to include crack sealing. Roads to include:
- Creekway Drive, Tuttle Hill Road to Parkland Drive
 - Parkland Drive, Creekway Drive to Creekway Drive
 - Daisey Lane, Creekway Drive to end of road
 - Shula Vista, Merritt Road to Parkland Drive
 - Marshcreek Drive, Parkland Drive to Creekway Drive
- Estimated project cost: \$ 22,600.00
-

AGREEMENT SUMMARY

2020 LOCAL ROAD PROGRAM

Mott Road	\$ 8,750.00
Washtenaw Orchard Subdivision	\$ 7,600.00
Washtenaw Concourse Subdivision	\$ 9,100.00
Hollis Road	\$ 6,100.00
Townsend's Subdivision	\$ 7,600.00
Parview Drive	\$ 3,100.00
Hubbard Avenue	\$ 15,500.00
Ford Lake Heights Subdivision	\$ 21,100.00
Smokler Textile Subdivision	\$ 9,100.00
Aspen Ridge Condominium	\$ 42,200.00
Creekside Village East Subdivision	<u>\$ 22,600.00</u>
Subtotal	\$ 152,750.00
Less WCRC 2020 Conventional Matching Funds	\$ 71,575.00
Less WCRC 2019 Drainage Matching Funds	\$ 4,800.00

ESTIMATED AMOUNT TO BE PAID BY YPSILANTI TOWNSHIP
UNDER THIS AGREEMENT DURING 2020: \$ 76,375.00

FOR YPSILANTI TOWNSHIP:

Brenda L. Stumbo
Brenda L. Stumbo, Supervisor *May 6, 2020*

Isaac Starfield
Witness *5-6-2020*

Karen Lovejoy Roe
Karen Lovejoy Roe, Clerk *May 6, 2020*

Isaac Starfield
Witness *5-6-2020*

FOR WASHTENAW COUNTY ROAD COMMISSION:

Douglas E. Fuller, Chair

Witness

Sheryl Soderholm Siddall, Managing Director

Witness

**CHARTER TOWNSHIP OF YPSILANTI
2020 BUDGET AMENDMENT #5**

MAY 5, 2020

AMOUNTS ROUNDED UP TO THE NEAREST DOLLAR

101 - GENERAL OPERATIONS FUND

Total Increase \$20,000.00

Request to increase budget for additional expenses related to supplies and equipment needed for the COVID-19 pandemic. An original request for \$20,000 was approved by the Board on April 21, 2020. These additional funds are needed for PPE and preparing buildings for return to work and opening of the buildings. This will be funded by an Appropriation of Prior Year Fund Balance.

Revenues:	Prior Year Fund Balance	101-000-000-699.000	\$20,000.00
		Net Revenues	<u><u>\$20,000.00</u></u>
Expenditures:	COVID-19 Supplies & Equip	101-267-000-727.300	\$20,000.00
		Net Expenditures	<u><u>\$20,000.00</u></u>

226 - ENVIRONMENTAL SERVICES FUND

Total Increase \$305,950.00

Request to increase the budget for contract extension and increase from Waste Management. This budget amendment assumes increased costs of service for the remainder of 2020. This will be funded by an Appropriation of Prior Year Fund Balance.

Revenues:	Prior Year Fund Balance	226-000-000-699.000	\$305,950.00
		Net Revenues	<u><u>\$305,950.00</u></u>
Expenditures:	CONTRACTUAL/RUBBISH PICKUP	226-226.000-804.001	\$180,000.00
	CONTRACTUAL/YARDWASTE PICKUP	226-226.000-804.003	\$13,950.00
	RECYCLING PICK-UP CURBSIDE	226-226.000-804.007	\$75,000.00
	CURBSIDE RECYCLING DISPOSAL	226-226.000-804.008	\$37,000.00
		Net Expenditures	<u><u>\$305,950.00</u></u>

Motion to Amend the 2020 Budget (#5)

Move to increase the General Fund budget by \$20,000 to \$9,615,571 and approve the department line item changes as outlined.

Move to increase the Environmental Service Fund budget by \$305,950 to \$3,256,471 and approve the department line item changes as outlined.

Supervisor
BRENDA L. STUMBO
Clerk
KAREN LOVEJOY ROE
Treasurer
LARRY J. DOE
Trustees
STAN ELDRIDGE
HEATHER ROE
MONICA ROSS-WILLIAMS
JIMMIE WILSON



ACCOUNTING DEPT

7200 S. Huron River Drive
Ypsilanti, MI 48197
Phone: (734) 484-3702
Fax: (734) 484-5154

Charter Township of Ypsilanti

STATEMENTS AND CHECKS

MAY 19, 2020 BOARD MEETING

ACCOUNTS PAYABLE CHECKS -	\$	293,455.76
HAND CHECKS -	\$	17,884.54
CREDIT CARD PURCHASES-	\$	<u>1,267.04</u>
GRAND TOTAL -	\$	312,607.34

Clarity Health Care Deductible –

ACH EFT - \$48,533.86 (APRIL)
ADMIN FEE - \$1,183.50 (APRIL)

Check Date	Check	Vendor Name	Amount
Bank AP AP			
05/19/2020	185229	ADVANCED COMMUNICATIONS & DATA	1,361.10
05/19/2020	185230	ALL SEASONS LANDSCAPING CO.	351.84
05/19/2020	185231	AMAZON CAPITAL SERVICES	2,424.49
05/19/2020	185232	ANGELINA BROWN	29.00
05/19/2020	185233	ANN ARBOR CLEANING SUPPLY	298.89
05/19/2020	185234	APOLLO FIRE EQUIPMENT CO.	500.84
05/19/2020	185235	AUTO VALUE YPSILANTI	97.78
05/19/2020	185236	BS & A SOFTWARE	31,768.00
05/19/2020	185237	CENTRACOMM	4,912.26
05/19/2020	185238	CHELSEA TIDERINGTON	635.95
05/19/2020	185239	CINCINNATI TIME SYSTEMS	275.20
05/19/2020	185240	CINTAS CORPORATION	5,760.00
05/19/2020	185241	CLARISSA CHARLEBOIS	45.00
05/19/2020	185242	COLMAN-WOLF SANITARY SUPPLY CO	273.53
05/19/2020	185243	CONTI	12,404.80
05/19/2020	185244	CRYSTAL FLASH, INC.	529.59
05/19/2020	185245	DIANA STERNIAK	45.00
05/19/2020	185246	DIUBLE EQUIPMENT INC.	23,800.00
05/19/2020	185247	EMERGENCY MEDICAL PRODUCTS	82.50
05/19/2020	185248	EMERGENCY VEHICLE SERVICES	25,828.29
05/19/2020	185249	ERIC COPELAND	10.00
05/19/2020	185250	FASTENAL	83.94
05/19/2020	185251	GLOBAL EQUIPMENT COMPANY	581.01
05/19/2020	185252	GOVERNMENTAL CONSULTANT SERVICES	3,113.50
05/19/2020	185253	GRAINGER	548.81
05/19/2020	185254	HOME DEPOT	43.88
05/19/2020	185255	JESSICA FORSYTHE	250.00
05/19/2020	185256	JESSICA SMITH-PONCE	60.00
05/19/2020	185257	KELLY DOE	250.00
05/19/2020	185258	LOWE'S	154.30
05/19/2020	185259	MARIAH BAKER	100.00
05/19/2020	185260	MARIAH MILLER	60.00
05/19/2020	185261	MCLAIN AND WINTERS	127,965.35
05/19/2020	185262	MENARDS, INC.	163.46
05/19/2020	185263	MICHIGAN LINEN SERVICE, INC.	1,182.36
05/19/2020	185264	NAPA AUTO PARTS*	59.94
05/19/2020	185265	OAKLAND COUNTY	1,919.25
05/19/2020	185266	OFFICE EXPRESS	371.53
05/19/2020	185267	ORCHARD, HILTZ & MCCLIMENT INC	853.00
05/19/2020	185268	PAMELA LEWIS	100.00
05/19/2020	185269	PARKWAY SERVICES, INC.	610.00
05/19/2020	185270	PHMC - ACCOUNTING DEPT	1,100.00
05/19/2020	185271	PNC EQUIPMENT FINANCE, LLC	7,022.07
05/19/2020	185272	QUADIANT INC	78.77
05/19/2020	185273	RHETT REYES	450.00
05/19/2020	185274	ROLYAN BUOYS	333.14
05/19/2020	185275	SHRADER TIRE & OIL	785.55
05/19/2020	185276	SPARTAN DISTRIBUTORS	4,054.96
05/19/2020	185277	SPICER GROUP	8,421.00
05/19/2020	185278	STERICYCLE INC	222.24
05/19/2020	185279	TASK FORCE TIPS	213.02
05/19/2020	185280	TINA KILGORE	80.00
05/19/2020	185281	UNIFIRST CORPORATION	102.92
05/19/2020	185282	UNITED STATES POSTAL SERVICE	10,000.00
05/19/2020	185283	UNIVERSITY TRANSLATORS	495.70
05/19/2020	185284	WASHTENAW COUNTY	6,240.00
05/19/2020	185285	WEINGARTZ	149.84
05/19/2020	185286	YPSILANTI ACE HARDWARE	14.47
05/19/2020	185287	YPSILANTI COMMUNITY	2,274.96
05/19/2020	185288	YPSILANTI COMMUNITY	1,414.08
05/19/2020	185289	ZEP SALES & SERVICE	98.65

AP TOTALS:

Total of 61 Checks:	293,455.76
Less 0 Void Checks:	0.00
Total of 61 Disbursements:	293,455.76

05/12/2020 03:24 PM
User: mharris
DB: Ypsilanti-Twp

CHECK REGISTER FOR CHARTER TOWNSHIP OF YPSILANTI Page: 1/1
CHECK NUMBERS 185221 - 185228

Check Date	Check	Vendor Name	Amount
<i>HAND checks</i>			
Bank AP AP			
05/05/2020	185221	AT & T	33.01
05/05/2020	185222	AT & T	241.47
05/05/2020	185223	COMCAST CABLE	7,122.44
05/05/2020	185224	CONSTELLATION NEW ENERGY	6,749.79
05/05/2020	185225	DTE ENERGY	2,165.39
05/05/2020	185226	GLOBAL EQUIPMENT COMPANY	991.48
05/05/2020	185227	YPSILANTI COMMUNITY	393.46
05/06/2020	185228	JENNIFER WILLIAMS	187.50

AP TOTALS:

Total of 8 Checks:	17,884.54
Less 0 Void Checks:	0.00
Total of 8 Disbursements:	17,884.54

05/12/2020 03:23 PM
User: mharris
DB: Ypsilanti-Twp

CHECK REGISTER FOR CHARTER TOWNSHIP OF YPSILANTI
CHECK NUMBERS 56 - 57

Check Date	Check	Vendor Name	Description	Amount
Bank CARDS COMERICA COMMERCIAL CARD				

CREDIT CARDS

05/12/2020	56(E)	COMERICA BANK	ANNUAL SUBSCRIPTION TO CANVA	119.40
			JOOMLA PLUGIN	74.84
			EVENTSENTRY RENEWAL	873.80
			JOOMLA TEMPLATES	199.00
				<u>1,267.04</u>

CARDS TOTALS:

Total of 1 Checks:	1,267.04
Less 0 Void Checks:	0.00
Total of 1 Disbursements:	<u>1,267.04</u>

ATTORNEY REPORT

GENERAL LEGAL UPDATE

NEW BUSINESS

Charter Township of Ypsilanti

**RESOLUTION 2020-10
(In Reference to Ordinance 2020 - 490)**

**Prohibition of Recreational
Marijuana Establishments**

Whereas, the Michigan Legislature adopted the **2018 Michigan Regulation and Taxation of Marijuana Act**; and

Whereas, the **2018 Michigan Regulation and Taxation of Marijuana Act** governs recreational marijuana; and

Whereas, prior to the approval of the **2018 Michigan Regulation and Taxation of Marijuana Act** Michigan voters and the Michigan legislature approved the **Michigan Medical Marijuana Act, Initiated Law 1 of 2008** legalizing medical marijuana and the **Michigan Medical Marijuana Facilities Licensing Act of 2016**; and

Whereas, proposed Township Ordinance 2020-490 entitled **Prohibition of Recreational Marijuana Establishments** applies to recreational marijuana businesses pursuant to the **2018 Michigan Regulation and Taxation of Marijuana Act**; and

Whereas, proposed Township Ordinance 2020-490 does not affect medical marijuana patients' rights or medical marijuana caregivers' rights under the **2008 Medical Marijuana Ballot Initiative**, to use and grow medical marijuana; and

Whereas, proposed Township Ordinance 2020-490 does not affect adult recreational marijuana users rights to consume, smoke or ingest marijuana; and

Whereas, municipalities have the right, under the **2018 Michigan Regulation and Taxation of Marijuana Act**, to decide whether recreational marijuana businesses are permitted within their communities and if they are permitted, the type or types of businesses so allowed, the zoning districts in which said businesses are permitted, as well as the adoption of other local regulations and requirements that are deemed to be in the best interests of the community; and

Whereas, the Ypsilanti Township Board of Trustees needs additional time to consider the important issues of whether commercial recreational marijuana businesses are in the best interests of the Township and, if so, the types of

businesses that may be suited to the Township based upon the zoning district(s) for such businesses and whether other local regulations and requirements should be adopted; and

Now Therefore,

Be it resolved, that Ordinance 2020-490 prohibiting recreational marijuana establishments (businesses) within Ypsilanti Township as set forth in the ***2018 Michigan Regulation and Taxation of Marijuana Act*** is hereby adopted by reference.

Charter Township of Ypsilanti

PROPOSED ORDINANCE NO. 2020-490

An Ordinance Prohibiting Recreational Marijuana Businesses within Ypsilanti Township as Provided by the Recreational Marijuana Ballot Initiative 1 of 2018

The Charter Township of Ypsilanti hereby ordains that pursuant to the authority granted to municipalities in the Recreational Marijuana Ballot Initiative 1 of 2018, otherwise known as the Michigan Regulation and Taxation of Marijuana Act (the Act), as amended, marijuana establishments as defined in the Act, are prohibited within the boundaries of Ypsilanti Township.

Penalty for Violations

Violation of this Ordinance constitutes a municipal civil infraction punishable by a \$500 fine. The violator shall be required to pay all direct and indirect expenses incurred by the Township in connection with the prosecution of the civil infraction. Each day during which a violation continues to exist shall be a separate offense.

The Township may seek injunctive relief against persons alleged to be in violation of this Ordinance and such other relief as may be provided by law.

Severability

Should any section, subdivision, sentence, clause or phrase of this Ordinance be declared by the Courts to be invalid, the same shall not affect the validity of the Ordinance as a whole or any part thereof other than the part as invalidated.

Publication

This Ordinance shall be published in a newspaper of general circulation as required by law.

Effective date

This Ordinance shall become effective upon publication in a newspaper of general circulation as required by law. This ordinance shall cease effect on June 30, 2021.

McLAIN & WINTERS

ATTORNEYS AND COUNSELORS AT LAW

61 N. HURON
YPSILANTI, MICHIGAN 48197
(734) 481-1120

DENNIS O. McLAIN
WM. DOUGLAS WINTERS
ANGELA B. KING

FAX (734) 481-8909
[E-MAIL: mcwinlaw@gmail.com](mailto:mcwinlaw@gmail.com)

April 30, 2020

Brenda L. Stumbo, Supervisor
Karen Lovejoy Roe, Clerk
Larry Doe, Treasurer
Charter Township of Ypsilanti
7200 S. Huron River Drive
Ypsilanti, MI 48197

Re: Proposed Ordinance 2020-490 extending the opt out time period for recreational marijuana businesses

Dear Township Board members,

As you will remember, in November of 2018, Michigan passed a referendum ballot initiative legalizing recreational marijuana. The law entitled the “**Michigan Regulation and Taxation Act**” (“the Act”), MCL 333.27951 et. seq. is a complex piece of legislation. It contains many provisions, including one that provides that municipalities have the choice to opt out of allowing recreational marijuana businesses within their communities. In the past year, a large majority of municipalities have opted out. Some communities did not want recreational businesses period. Other communities that opted out did so to allow for additional time. They wanted to understand the different types of potential marijuana businesses created under the new law and many other concerns. These municipalities knew that the decision to opt out could be changed at a later time. In contrast, municipalities which have already decided to opt in, allowing recreational marijuana businesses to open, will be confronted with numerous challenges, if they later wish to change zoning or other regulations, for existing recreational marijuana businesses.

According to the Michigan Marijuana Regulatory Affairs website, as of April 24, 2020, **1425** municipalities have opted **out** of all types of recreational businesses and **46** have opted **in**.

Stumbo.Roe.Doe
Re: Marijuana Resolution
April 29, 2020
Page 2

In May 2019, Ypsilanti Township was among the municipalities that chose to opt out. The Township Board decided to press the pause button on recreational marijuana businesses to allow time to gather more information. Under the terms of the opt out ordinance (Township Ordinance 2019-484), the ordinance expires on **June 30, 2020**.

Before going any further, we want to be clear about what is and what is not affected by Township Ordinance 2020-490. The Ordinance **only** relates to the **recreational marijuana businesses**. **It does not affect medical marijuana patients' rights or medical marijuana caregivers rights to buy and use marijuana for their own personal use under the 2008 Medical Marijuana Act**. The Ordinance also does **not** affect an individual's right under the **2008 Medical Marijuana Act** to grow up to 12 marijuana plants for personal use or a caregiver's right to grow up to 72 plants for their patients and themselves. Medical marijuana patients and caregivers rights afforded in the **Medical Marijuana Act** are **not** affected by Township Ordinance 2020-490. Proposed Ordinance 2020-490 is limited to **recreational for profit marijuana businesses**.

Due to the complex issues and decisions presented by recreational marijuana business opt in or opt out decision, and the current challenges the Township Board is facing due to the Covid-19 pandemic, we are writing to you jointly to recommend that you adopt the attached ordinance 2020-490. The Ordinance, if adopted extends the opt out period for recreational marijuana to **June 30, 2021**.

From a planning professional's perspective, the Township recently completed an extensive process to update the Township's Master Plan. The Board also authorized the revision of the entire Zoning Ordinance. While this revision is in process, the amended Zoning Ordinance will not be completed and ready for adoption until this time next year. In the revision of the Zoning Ordinance, it is anticipated that there will be new zoning districts created and existing zoning districts eliminated in order to align the Zoning Ordinance and Master Plan. Until that process is complete, it would be difficult, if not impossible, for the Planning Commission to provide reasonable recommendations to the Board regarding appropriate locations and standards for any one of the eleven potential recreational marijuana facilities.

There is no need here to explain to you the current and future upending of our normal way of doing business in the Township. Meetings are all conducted online. Discussions with Township staff and their consultants are done via email, telephone or zoom. We all know that it is not easy to collaborate on Township matters the way we did pre-COVID 19. In our opinion, the Township should not

Stumbo.Roe.Doe
Re: Marijuana Resolution
April 29, 2020
Page 3

rush into deciding whether to allow recreational businesses to operate within its borders. There are many considerations that need to be addressed before any permanent decision is reached on recreational marijuana businesses. For the reasons explained in this letter, the next few months are not sufficient time for the Township Board to decide what if any marijuana businesses should be permitted and, if so, implement zoning and other special regulations regarding those businesses.

From a township attorney's perspective, there are many complex considerations and decisions that municipalities face when deciding whether or not to allow recreational marijuana businesses to locate within their communities. For this reason, it is necessary to explain some of the important legislation contained within the Act. The following is an overview of the types of marijuana businesses created by the **Michigan Taxation and Regulation Act**.

The **Michigan Taxation and Regulation Act** contains many important provisions. Among the important provisions are laws governing: 1) the adoption and enforcement of municipal ordinances; 2) the implementation, administration, and enforcement of the Act; 3) delegation of rule-making authority to the Department of Licensing and Regulatory Affairs (later delegated to the newly created Marijuana Regulatory Affairs Agency); 4) definitions of the various types of recreational marijuana businesses; 5) licensing fees for recreational marijuana businesses; 6) taxation on recreational marijuana; and 7) the establishment of a recreational marijuana fund setting forth the distribution of the marijuana taxes among a variety of different governmental entities and clinical trials. Under the Act, the first 20 million dollars generated by the tax on recreational marijuana will fund clinical trials approved by the FDA. The remaining tax revenue is split between the following governmental entities: 1) 15% divided between all municipalities that permit retail sales and micro businesses sales of recreational marijuana; 2) 15% divided between all counties with municipalities which permit retail sales and micro business sales of recreational marijuana; 3) 35% to the K-12 school aid fund; and 4) 35% to the Michigan transportation fund for roads and bridges.

In Michigan, there are eleven different types of for-profit marijuana businesses which municipalities may permit to do business within their borders. The businesses are: 1-3) class A, B, and C marijuana grower businesses which can grow and sell up to 2,000 marijuana plants (classification determines the number of marijuana plants permitted) ; 4) marijuana processor businesses (facilities which prepare marijuana plants by compounding, blending, extracting, infusing marijuana); 5) for profit marijuana retail businesses (sales of marijuana); 6)

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April 29, 2020
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marijuana safety compliance facilities (testing facilities for potency and presence of contaminants); 7) marijuana secure transporter businesses (transports marijuana to and from other marijuana establishments); 8) marijuana microbusinesses (cultivates, processes and packages 150 marijuana plants); 9) marijuana event organizers (persons licensed to hold temporary marijuana events); 10) marijuana temporary events (events held by a marijuana event organizer with onsite sale and consumption of marijuana products at a specific location); and 11) marijuana designated consumption businesses (commercial space where marijuana products are consumed on premises). A municipality has the right to decide to permit none of the eleven businesses, some of the marijuana businesses, or all of the eleven businesses.

In addition to deciding whether to permit one or more of the eleven different types of marijuana businesses, there are other very important zoning and regulatory decisions that a Township must make regarding each business. One important decision for municipalities that choose to allow a marijuana business is zoning. For each type of permitted marijuana business, the Township must decide what zoning district or districts the business is permitted to operate. Keep in mind that each type of for-profit marijuana business, presents different concerns. For example, a marijuana processing business involves extracting marijuana resin from the plant and processing it into a liquid or solid. One of the more cost effective marijuana processing methods uses butane as a solvent in either open or closed loop system. Both methods use a hazardous substance which runs the risk of being mishandled, resulting in potential fires or explosions. Another more expensive process uses CO₂ in a highly pressurized form which is also risky in terms of potential explosions. These types of uses are generally regarded as "industrial". Depending on the nature of the industrial use, the Township's Zoning Code currently has 3 industrial districts (I-III). The I-3 Industrial District is intended for the heaviest of industrial uses. The Township Planning Commission needs to first hold public hearings and make a recommendation to the Township Board as to what zoning district(s) is appropriate for a specific type of recreational marijuana business. The appropriate zoning district needs to be determined for every type of marijuana business a municipality permits.

Besides deciding the zoning district for each type of possible business, the law permits the Township to also include possible distancing requirements. As you know, a distancing requirement means that a marijuana business, even if it is in a permitted zoning district, cannot locate within a certain distance of places such as schools, houses of worship or residences. For each type of business permitted, the Township needs to consider whether a distancing requirement should be

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imposed. This distancing requirement would be a separate layer of regulation on where the business may locate in addition to the zoning regulation.

Another very important decision that must be made if a municipality decides to permit one or more of the 11 different types of recreational marijuana businesses, is whether to impose a cap on the number of businesses allowed in the municipality. Many of the municipalities that have opted in to allow recreational marijuana businesses, have placed different caps on the number of individual businesses allowed in the community.

The last but certainly not least decision that a Township Board must make regarding whether to allow recreational marijuana businesses, especially if there is a decision to impose caps on the number of businesses, is the criteria that will be used to determine which applicants qualify for a license. In some communities, there are a certain number of licenses that are designated for applicants which meet certain criteria. An example of the criteria that might be included is whether the applicant has business roots in the community, whether an applicant will agree to employ a certain number of local residents, and whether an applicant agrees to pay a living wage to its workers. These are just a few examples of the types of local control regulations that may be considered. There are many other types of special restrictions that can be included in licensing criteria for each type of marijuana business that is permitted.

On May 7, 2019, the Township Board adopted the Ordinance 2019-484. When the Ordinance was adopted the Michigan regulations regarding recreational marijuana were unknown. They were being drafted. As we have already mentioned, since that time, many municipalities have opted out of allowing recreational marijuana business within their communities.

As mentioned previously, when the Board decided to opt out of allowing recreational businesses to operate within the Township, the Board included a June 30, 2020, sunset provision in the ordinance.

If the attached Ordinance is adopted, it will preserve the status quo and will allow you to take the time necessary to carefully consider whether or not to permitting commercial recreational marijuana businesses is in the best interests of the Township. If the Board decides to allow some or all of the 11 types of different recreational marijuana businesses, the Board will need to determine zoning regulations, caps on licenses, and other special requirements such as distancing.

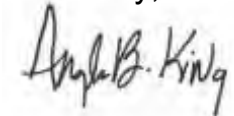
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If you decide to maintain the status quo, you will be able to learn whether communities that currently allow the various types of recreational marijuana businesses benefitted from the decision to opt in. This includes learning the **actual** amount of taxes received by the opt in communities from the marijuana tax fund. This information will be helpful in performing a cost/benefit analysis using the actual taxes received and the municipal costs associated with regulating recreational marijuana businesses in those communities. The passage of time will also allow you to find out if there were unforeseen negative consequences to the municipalities that approved marijuana businesses. Under the law, there is no provision for revoking a marijuana business license once it has been granted unless there is a violation of the State regulations.

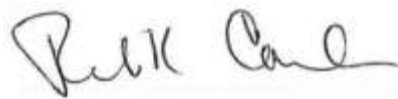
Giving the Board additional time to consider this important issue will not impact the ability of recreational marijuana customers to buy marijuana products. They are able to buy the product in the near-by Cities of Ypsilanti and Ann Arbor. They are also able to buy recreational marijuana via home delivery and carry out service. Home delivery services were available before the Covid-19 crisis. Home delivery of marijuana remains available during the Covid-19 crisis. A quick Google search will reveal how easy it is to buy recreational marijuana.

We think it makes sense to for the Board to take time considering the important question of whether recreational marijuana business should be allowed to locate within Ypsilanti Township.

Sincerely,



Angela B. King



Richard Carlisle

ABK/js

RESOLUTION 2019-20
(In Reference to Ordinance 2019-484)

Prohibition
Of Recreational Marihuana Establishments

Whereas, in November of 2018, Michigan voters approved the legalization of recreational marihuana hereinafter referred to as the **2018 Michigan Regulation and Taxation of Marihuana Act**, and

Whereas, prior to the approval of the **2018 Michigan Regulation and Taxation of Marihuana Act** Michigan voters and the Michigan legislature approved two (2) separate and independent statutes which govern medical marihuana only, to-wit: the **Michigan Medical Marihuana Act, Initiated Law 1 of 2008** legalizing medical marihuana and the **Michigan Medical Marihuana Facilities Licensing Act of 2016**; and

Whereas, proposed Township Ordinance 2019-484 entitled **Prohibition of Recreational Marihuana Establishments** applies only to commercial recreational marihuana businesses authorized by the **2018 Michigan Regulation and Taxation of Marihuana Act**, and

Whereas, proposed Township Ordinance 2019-484 does not affect medical marihuana patients' rights or medical marihuana caregivers' rights under the **2008 Medical Marihuana Ballot Initiative**, including an individual medical marihuana patient's right to grow up to twelve (12) marihuana plants for personal use or a medical marihuana caregivers right to grow up to seventy-two (72) plants for their patients and themselves, and;

Whereas, the focal point of proposed Township Ordinance 2019-484 concerns potential recreational marihuana businesses that could be located within the boundaries of the Charter Township of Ypsilanti ; and

Whereas, under the **2018 Michigan Regulation and Taxation of Marihuana Act**, a recreational marihuana business includes a number of different types of commercial enterprises which are as follows:

- (1) Recreational marihuana growers and sellers of up to 2,000 marihuana plants;
- (2) Recreational marihuana safety compliance facilities (defined as testing facilities for potency and presence of contaminants);
- (3) Recreational marihuana processors (preparation of marihuana plants by compounding, blending, extracting, and infusing marihuana);
- (4) Recreational marihuana microbusinesses (cultivates, processes, and packages up to 150 marihuana plants); and
- (5) Recreational marihuana retailer (retail sale of marihuana)
- (6) Recreational marihuana transporters (transports marihuana to and from other marihuana establishments); and

Whereas, under the **2018 Michigan Regulation and Taxation of Marihuana Act** the Michigan Department of Licensing and Regulatory Affairs (LARA) is responsible for adopting rules and regulations applicable to commercial recreational marihuana businesses; and

Whereas, LARA's initial meeting regarding the drafting of rules and regulations to govern recreational marihuana businesses pursuant to the **2018 Michigan Regulation and Taxation of Marihuana Act** was scheduled to convene during the week of **March 25, 2019**; and

Whereas, under Governor Gretchen Whitmer's recent executive order, a new State agency is expected to oversee the licensing of recreational marihuana businesses pursuant to the **2018 Michigan Regulation and Taxation of Marihuana Act** once the governing the rules and regulations have been properly promulgated and approved as required by the Act; and

Whereas, Municipalities have the right, under the **2018 Michigan Regulation and Taxation of Marihuana Act**, to decide whether commercial

recreational marihuana businesses are permitted within their communities and if they are permitted, the type or types of businesses so allowed, the zoning districts in which said businesses would be permitted as well as the enactment of other local regulations and requirements that would be deemed to be in the best interests of the community; and

Whereas, before the Ypsilanti Township Board of Trustees can consider the salient issues of whether commercial recreational marihuana businesses are in the best interests of the Township, and if so, the types of businesses that may be suited to the Township based upon the zoning district(s) for such businesses and whether other local regulations and requirements should be adopted, the Township Board needs to be fully apprised prior thereto of all of the rules and regulations that will be promulgated and adopted by LARA governing commercial recreational marihuana businesses pursuant to the **2018 Michigan Regulation and Taxation of Marihuana Act**; and

Whereas, pursuant to the **2018 Michigan Regulation and Taxation of Marihuana Act**, if the Township does not adopt an Ordinance prohibiting commercial recreational marihuana businesses, any commercial recreational marihuana business licensed by the State, is automatically allowed to operate within Ypsilanti Township; and

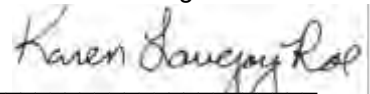
Whereas, in order to avoid a situation where a commercial recreational marihuana business is licensed by the State to operate within the Township, before the Township Board has carefully considered whether to allow the businesses to operate within the Township, the Township Board hereby determines that it is in the best interest of the Township to maintain the status quo until the State of Michigan by and through LARA adopts the required rules and regulations applicable to commercial recreational marihuana businesses so as to allow the Township Board an opportunity to carefully review the same;

Now Therefore,

Be it resolved, that Ordinance No. 2019- 484 prohibiting recreational marihuana establishments (businesses) within Ypsilanti Township as set forth in

the **2018 Michigan Regulation and Taxation of Marihuana Act** is hereby adopted by reference.

I, Karen Lovejoy Roe, Clerk of the Charter Township of Ypsilanti, County of Washtenaw, State of Michigan hereby certify the above resolution is a true and exact copy of Resolution No. 2019-20 approved by the Charter Township of Ypsilanti, Board of Trustees assembled at a Regular Meeting held on May 7, 2019.



Karen Lovejoy Roe, Clerk
Charter Township of Ypsilanti

CHARTER TOWNSHIP OF YPSILANTI
COUNTY OF WASHTENAW, STATE OF MICHIGAN
ORDINANCE 2019-484

***Prohibition of Recreational Marihuana
Establishments Ordinance***

An ordinance to provide a title for the ordinance; to define words; to prohibit marihuana establishments within the boundaries of the Charter Township of Ypsilanti pursuant to ***Initiated Law 1 of 2018, MCL 333.27951 et seq*** as may be amended; to provide penalties for violation of this ordinance; to provide for severability; to repeal all ordinances or parts of ordinances in conflict therewith; and to provide an effective date.

CHARTER TOWNSHIP OF YPSILANTI
COUNTY OF WASHTENAW, STATE OF MICHIGAN

ORDAINS:

Section I
Title

This ordinance shall be known as and be cited as the Charter Township of Ypsilanti Prohibition of Marihuana Establishments Ordinance.

Section II
Definitions

Words used herein shall have the definitions as provided for in ***Initiated Law 1 of 2018, MCL 333.27951 et seq***, as may be amended.

Section III
No Marihuana Establishments

The Charter Township of Ypsilanti hereby prohibits all marihuana establishments within the boundaries of the Township pursuant to ***Initiated Law 1 of 2018, MCL 333.27951 et seq*** as may be amended.

Section IV
Violations and Penalties

1. Any person who disobeys, neglects or refuses to comply with any provision of this ordinance or who causes, allows or consents to any of the same shall be deemed to be responsible for the violation of this ordinance. A violation of this ordinance is deemed to be a nuisance per se.
2. A violation of this ordinance is a municipal civil infraction, for which the fines shall not be less than One Hundred and No/100 (\$100.00) Dollars nor more than Five Hundred and No/100 (\$500.00) Dollars, in the discretion of the Court. The foregoing sanctions shall be in addition to the rights of the Township to proceed at law or equity with other appropriate and proper remedies. Additionally, the violator shall pay costs which may include all expenses, direct and indirect, which the Township incurs in connection with the municipal civil infraction.
3. Each day during which any violation continues shall be deemed a separate offense.
4. In addition, the Township may seek injunctive relief against persons alleged to be in violation of this ordinance, and such other relief as may be provided by law.
5. This ordinance shall be administered and enforced by the Ordinance Enforcement Officer of the Township or such other person(s) as designated by the Township Board from time to time.

Section V
Severability

The provisions of this ordinance are hereby declared to be severable. If any clause, sentence, word, section or provision is hereafter declared void or unenforceable for any reason by a Court of competent jurisdiction, it shall not affect the remainder of such ordinance which shall continue in full force and effect.


Section VI
Repeal

All ordinance or parts of ordinances in conflict herewith are hereby repealed.

Section VII
Effective Date

This ordinance shall become effective upon publication in a newspaper of general circulation as required by law. This ordinance shall cease effect on June 30, 2020.

I, Karen Lovejoy Roe, Clerk of the Charter Township of Ypsilanti, County of Washtenaw, State of Michigan hereby certify adoption of Ordinance No. 2018-484 by the Charter Township of Ypsilanti Board of Trustees assembled at a Regular Meeting held on May 7, 2019 after first being introduced at a Regular Meeting held on April 2, 2019. The motion to approve was made by member Roe and seconded by Ross Williams YES: Stumbo, Roe, Doe, Eldridge, Jarrell Roe, Ross Williams ABSENT: Wilson NO: None ABSTAIN: None.



Karen Lovejoy Roe, Clerk
Charter Township of Ypsilanti

Published: Thursday, May 16, 2019

CHARTER TOWNSHIP OF YPSILANTI

OFFICE OF COMMUNITY STANDARDS

Building Safety • Planning & Zoning • Ordinance Enforcement • Police Services

To: Karen Lovejoy Roe, Clerk
From: Michael Radzik, OCS Director
Re: **Request to approve revisions to the Engineering Standards and Design Specifications adopted and used jointly by the Township and the Ypsilanti Community Utilities Authority to facilitate new development and public capital improvement.**
Copy: McLain & Winters, Township Attorneys
Date: May 11, 2020

The Office of Community Standards (OCS) and the Ypsilanti Community Utilities Authority (YCUA) jointly adopt a set of Engineering Standards and Design Specifications that provide uniform engineering standards for capital improvements, future development and redevelopment as it relates to design, materials, and methods of construction.

The current set of standards and specifications were adopted in 2009 and are out of date. In 2017, OHM Advisors was authorized to begin working with OCS and YCUA to update and revise the standards. A formal request to adopt revisions to the Water Supply and Wastewater chapters was received from YCUA on November 26, 2018. Additional revisions were subsequently made over the last year, resulting in a completed final draft now ready for consideration and approval.

Revising the technical engineering standards and design specifications, along with revisions to the administrative chapters describing the township's Plan Review Process, has been a team effort with contributions from YCUA Engineering Manager Scott Westover, OHM Advisors, Carlisle Wortman Associates, as well as OCS staff past and present.

A summary of major technical revisions prepared by Elliot Smith from OHM Advisors is enclosed for reference.

Please place the 2020 revised Engineering Standards and Design Specifications on the agenda for the May 19, 2020 meeting of the Board of Trustees for its consideration. I respectfully request that the Board review and approve the revised manual for immediate adoption.



YPSILANTI COMMUNITY UTILITIES AUTHORITY

2777 STATE ROAD
YPSILANTI, MICHIGAN 48198-9112
TELEPHONE: 734-484-4600
WEBSITE: www.ycua.org

May 19, 2020

VIA ELECTRONIC MAIL

Mr. Michael Radzik, Director
Office of Community Standards
Charter Township of Ypsilanti
7200 S. Huron River Drive
Ypsilanti, MI 48197

Re: **Engineering Standards and Design Specifications**
Significant Revisions

Dear Mr. Radzik:

This letter is written to summarize the most significant revisions to the water supply and wastewater chapters of the Engineering Standards. They are as follows:

- Looping of water main is required in all instances unless a dead-end alignment is approved by YCUA.
- Hydrant location will be dictated by International Fire Code and approved by the Township Fire Department.
- Tracer wire will be required with all water main installation.
- Sanitary sewer pipes less than 8" diameter will be considered private building sewers with no more than a single user allowed to connect to them.
- The standard detail plan sheets have been updated to accurately reflect the requirements of the water supply and wastewater chapters. The standard details had not been revised in concert with the text of the chapters over the years and contained a number of discrepancies.

There were a number of minor revisions as well, mostly grammatical in nature. Should there be any questions please contact this office.

Sincerely,



SDW Digital Signature

SCOTT D. WESTOVER, P.E., Engineering Manager
Ypsilanti Community Utilities Authority

cc: Mr. Jeff Castro, File, YCUA
Mr. Matt Parks, P.E., OHM Advisors, Inc.



Dedicated to Providing Top Quality, Cost Effective, and
Environmentally Safe Water and Wastewater Services to Our Customers

YPSILANTI COMMUNITY UTILITIES AUTHORITY

2777 STATE ROAD
YPSILANTI, MICHIGAN 48198-9112
TELEPHONE: 734-484-4600
WEBSITE: www.ycua.org

November 26, 2018

VIA ELECTRONIC MAIL

Mr. Michael Radzik, Director
Office of Community Standards
Charter Township of Ypsilanti
7200 S. Huron River Drive
Ypsilanti, MI 48197

Re: **Engineering Standards and Design Specifications**

Dear Mr. Radzik:

As you are aware, a complete update of both the Water Supply and Wastewater chapters Engineering Standards and Design Specifications has been completed. It is understood that the other technical sections of the document have also been updated. It is further understood that the administrative sections have been or will be removed from the Standards. The Authority requests that the Township Board of Trustees, at their earliest convenience, consider adopting the Engineering Standards and Design Specifications. Should there be any questions please contact this office.

Sincerely,



SCUA Digital Signature

SCOTT D. WESTOVER, P.E., Engineering Manager
Ypsilanti Community Utilities Authority

cc: Mr. Jeff Castro, File, YCUA
Mr. Matt Parks, P.E., OHM Advisors, Inc.

G:\YCUAproj\Engineering Design Specifications\Standards Update Request 2018.docx



memorandum

May 11, 2020

Charter Township of Ypsilanti

7200 S. Huron River Drive

Ypsilanti, Michigan 48197

Attention: Charter Township of Ypsilanti Board of Trustees

Regarding: Charter Township of Ypsilanti
2020 Engineering Standards and Design Specifications

Dear Township Board,

OHM Advisors is pleased to submit the final draft of the Ypsilanti Township 2020 Engineering Standards and Design Specifications (Standards) for adoption. The current version of the standards was adopted and created in 2009 and is out of date. After authorization in 2017, OHM began coordination efforts with the Township Office of Community Standards, YCUA, and other agencies in order to update items that have changed over the past 11 years. Like previous Standard updates, these modifications are written to maintain a document that is developer-friendly and easy to understand, while maintaining a high standard for infrastructure servicing the Township and its residents. Below is a summary of major revisions that were included in the latest 2020 version of the Standards. Please note that only major revisions are noted, and that minor revisions have not been listed due to the extensive revising of the 2009 document.

- All Sections and Appendices were revised to remove reference of the Michigan Department of Environmental Quality (MDEQ) and replace with the Michigan Department of Environment, Great Lakes, and Energy (EGLE).
- References to the latest MDOT Standards (where applicable) were updated.
- Standards were formatted to reference the “most current” agency standards where applicable.
- Stormwater section was updated to conform and reference the new WCWRC Rules.
- Section I was revised to include updated contact information for outside agencies and utility companies.
- Section II was removed and replaced with the Township’s Site Plan Review Process derived from the recently updated Zoning Ordinance Procedures Manual.
- Appendices, Table of Contents and Cover Page was updated

Watermain Design and Details

- Additional tracer wire detail added to watermain design.
- Corrosion control requirement through means of polyethylene encasement added.
- Relocation of water main detail removed



Sanitary Design and Details

- Drop Bowl Mounting Position and Drop Bowl with Hood Detail added. Hood added to Interior Drop bowl connection.
- Stainless steel straps replaced with Adjusting Clamping Brackets in interior drop connection detail.
- Diameter of sanitary manholes changed per pipe influenced. 4'-0" minimum diameter for all manholes with pipe 21" and smaller, 5'-0" minimum for all manholes with pipes larger than 21".
- Height of sanitary manhole channel removed and replaced with: "Height of channel wall to be formed or shaped to the full height of the crown of the outlet sewer."
- Piezometer detailed included with sanitary manhole detail with a new process and called-out as: "Outside of Manhole, Place typical 2" diameter piezometer tube, with a slotted end, installed at direction of engineer for measuring groundwater prior to air testing. To be removed or grouted upon substantial completion and acceptance for the sewer for use."
- Sanitary manhole frame replaced with 1040Z Frame. Frame detail added.
- Wastewater pump station updated to include following revisions:
 - Aluminum hatch with safety grate
 - Vent Pipes
 - Slab elevations and dimensions

We hope this will assist your understanding of the revisions that were made to the document. If there are any questions, please do not hesitate to contact Elliot Smith.

Sincerely,
OHM Advisors

Matthew D. Parks, P.E.

Elliot R. Smith

Charter Township of Ypsilanti Engineering Standards and Design Specifications



Veterans Memorial Drive
Ypsilanti Township, Michigan



Charter Township of Ypsilanti
7200 S. Huron River Drive
Ypsilanti, MI 48197



Ypsilanti Community Utilities Authority
2777 State Road
Ypsilanti, MI 48198



Adoption Date: May 2020

Revision Date: May 2020

PREFACE

The following includes technical engineering standards for both the Charter Township of Ypsilanti and the Ypsilanti Community Utilities Authority (YCUA). The purpose of this document is to provide uniform engineering standards for capital improvements, future development and redevelopment alike as it relates to the design, materials, and methods of construction. This document should be reviewed as well as other local agency standards and local ordinances. For purposes of new development or redevelopment, the Office of Community Standards (OCS) should be contacted to discuss process and procedures. OCS can be contacted at (734) 485-4393 or planning@ytown.org.

These Engineering Standards and Design Specifications were adopted on **May 19, 2020** and may be amended from time to time.

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Charter Township of Ypsilanti Engineering Standards and Design Specifications

- I. Introduction to the Standards and Design Specifications
 - A. Understanding the standards and Engineering Process
 - B. Capital improvement and Public Infrastructure design
 - C. Private Development Process

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 - A. Introduction
 - B. Preapplication Meeting
 - C. Preliminary Site Plan Review
 - D. Plot Plan Review
 - E. Detailed Engineering and construction Plan Review

Technical Sections

- III. Topographic Survey
- IV. Water Supply System
- V. Wastewater System
- VI. Storm Water Management
- VII. Paving Improvements
- VIII. Grading and Earthwork
- IX. Soil Erosion and Sedimentation Control

Appendices:

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	A-2: Plot Plans
	A-3: Detailed Engineering Plans
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	A-5: Record Drawings
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Digital Appendix	Standard Details

I. INTRODUCTION TO THE STANDARDS AND DESIGN SPECIFICATIONS

A. Understanding the Standards and Engineering Process

The existence and constant improvement of the growing network of public utility, drainage and road system infrastructure within the Charter Township of Ypsilanti (Ypsilanti Township) demands the need to maintain an updated compilation of engineering based standards and design specifications for development and infrastructure improvements.

These standards and design specifications (standards) are intended to guide public capital improvement infrastructure projects that occur within the Township and that are under the jurisdiction of Ypsilanti Township, and the Ypsilanti Community Utilities Authority (YCUA). These standards are also intended to serve those who wish to develop or redevelop a property within Ypsilanti Township and ensure that a high level of quality during the planning, design and construction phase occurs. These specifications have been developed to focus on all engineering aspects associated with site development and infrastructure improvements and include sections specific to: topographic survey, water supply system, wastewater system, storm water management, paving improvements, sidewalk and pathway, grading and earthwork and soil erosion and sedimentation control.

These standards were created to ensure infrastructure is installed at a high level of quality in the interest of promoting economic growth while facilitating maintenance and operations of the utilities.

These standards will help serve as a guide through the engineering and construction stages of a project by providing information so one can effectively and efficiently navigate through the process. Understanding the standards and Township ordinances prior to starting design and communicating with Township and agency staff throughout is strongly encouraged and will help achieve positive results with regards to the proposed improvement.

These standards supplement all other applicable requirements of the Township Ordinances as well as requirements of any other impacted agencies. In the event that any of the standards, ordinances or requirements presents a conflict, the ordinance shall govern. These standards are intended to provide the minimum guidelines for engineering infrastructure plans. Throughout planning, engineering design and construction of an infrastructure improvement, the Ypsilanti Township Office of Community Standards (OCS) can be contacted for information or answers to questions that may arise. The Township OCS can be reached at (734) 485-4393 or planning@ytown.org.

B. Capital Improvement and Public Infrastructure Design

For all public capital improvement and infrastructure design being conducted within Ypsilanti Township the Technical specification sections starting with Section III (Topographic Survey) through Section IX (Soil Erosion and Sedimentation Control) should be followed.

1. Permit Requirements

For all public capital improvement designs, permits and/or waivers may be necessary from Ypsilanti Township, YCUA and other applicable agencies. It is important to contact each agency prior to commencing design to obtain details on what requirements may be necessary to carry out the planning and construction and what potential existing infrastructure may impact the proposed improvement. A listing of facilities and controlling agency and contact information has been provided below. This includes local, regional, state and franchise entities. Please note that the list below is not all inclusive and additional agency may need to be contacted based on the uniqueness of the project area.

Local Facility	Controlling Agency	Permit or Waiver	Contact information
Water Supply System and Wastewater System	Ypsilanti Community Utilities Authority (YCUA)	Letters of Approval	Engineering Department 2777 State Road Ypsilanti, Michigan 48198 (734) 484-4600
Public Roadways	Washtenaw County Road Commission (WCRC)	Letters of Approval & Permits or Waiver Letter Claiming No Jurisdiction	555 N. Zeeb Road Ann Arbor, Michigan 48103 (734) 761-1500
Well / Septic Services	Washtenaw County Department of Planning and Environment	Permit or Waiver Letter	705 N. Zeeb Road PO Box 8645 Ann Arbor, MI 48107-8645 (734) 222-3930
Soil Erosion & Sedimentation Control	Charter Township of Ypsilanti	Permit or Waiver Letter	Office of Community Standards (OCS) 7200 S. Huron River Drive Ypsilanti, Michigan 48198 (734) 485-3943
Bus Stops	Ann Arbor Area Transportation Authority (AAATA)	Letter of Approval where bus stops proposed/affected	2700 S. Industrial Hwy. Ann Arbor, MI 48104 (734) 973-6500
County Water Resources	Washtenaw County Water Resources Commissioner's Office	Letter of Approval, Permit or Waiver Letter Claiming No Jurisdiction	P.O. Box 8645 705 N. Zeeb Road Ann Arbor, Michigan 48103 (734) 994-2525
Regional or State Facility	Controlling Agency	Permit or Waiver	Contact information
State Roadways: Interstate 94, Michigan Avenue, Washtenaw Avenue, and Ecorse Road	Michigan Department of Transportation	Letter of Approval and Permits	Brighton TSC 10321 Grand River Avenue Suite 500 Brighton, MI 48116 (810) 227-4681
Regional or State Facility	Controlling Agency	Permit or Waiver	Contact information

Water Supply System	Detroit Water and Sewerage Department Suburban Design Section and/or	Stamp of Approval or Waiver Via YCUA (Submittal must be via YCUA)	735 Randolph Street, 1st Floor Detroit, Michigan 48226-1718 (313) 267-8000
	Michigan Department of Environment, Great Lakes, & Energy Public Wastewater and Drinking Water Unit Water Bureau	Act 399 Permit (Submittal must be through YCUA or DWSD)	Jackson District Office 301 E. Louis Glick Highway 4th Floor State Office Building Jackson, Michigan 49201 (517) 780-7690
Wastewater System	Michigan Department of Environment, Great Lakes, & Energy Public Wastewater and Drinking Water Unit Water Bureau Southeast Michigan District Office	Part 41 Permit (Submittal must be through YCUA)	27700 Donald Court Warren, MI 48092-2793 (586) 753-3700
Wetlands and Impacts to Waters of the State	Michigan Department of Environment, Great Lakes, & Energy and/or EPA	Permit	525 West Allegan St PO Box 30473 Lansing, MI 48909-7973
Franchise Facility	Controlling Agency	Permit or Waiver	Contact information
Gas	DTE Energy (MichCon)	Letter of Approval (Projects where gas lines are impacted)	Replacement Team Noble Second Floor 3200 Hobson Detroit, Michigan 48201 (313) 577-7350
Electric	DTE Energy	Letter of Approval (Projects where electric lines are impacted)	Case Manager 982 Broadway Ann Arbor, Michigan 48105 (734) 332-3313
Franchise Facility	Controlling Agency	Permit or Waiver	Contact information

Telephone	AT&T	Letter of Approval (Projects where phone/fiber optic lines are impacted)	550 S. Maple Road Ann Arbor, Michigan 48103 (734) 996-5300
Cable Television/Telephone	Comcast Cable Communications, Inc.	Letter of Approval (Projects where cable lines are impacted)	5855 Interface Drive Ann Arbor, Michigan 48103 (734) 369-3776
Private Facility	Controlling Agency	Permit or Waiver	Contact information
Wolverine Pipeline	Wolverine Pipeline	Letter of Approval for crossings	8075 Creekside Drive Portage, MI 49024 (269) 323-2491
BP Pipeline	BP Pipeline	Letter of Approval for crossings	30 South Wacker Drive Chicago, IL 60606 (630) 420-5111
ANR Pipeline	ANR Pipeline	Letter of Approval for crossings	27725 Stansbury Boulevard Farmington Hills, MI 48334 (313) 965-1616
Norfolk Southern Railroad	Norfolk Southern	Letter of Approval for crossings, ROW Occupation	DMJM Harris 260 S. Broad St., Ste. 1500 Philadelphia, PA 19102 Attn: NS Pipe and Wire Administrator

2. Standard Details

For all proposed public infrastructure improvement projects within Ypsilanti Township, the standard detail sheets shall be included in the plan set.

C. Private Development Process

The plan review process in Ypsilanti Township represents a phased approach aimed at first promoting discussion of design concepts, then a site plan review and ultimately a detailed engineering review. Detailed standards and check lists are included within this document to serve as a guide to plan development, engineering design, material selection and construction. These checklists do not necessarily include every requirement needed for approval as individual sites may have unique features that may have to be addressed in ways which are not necessarily outlined. A more comprehensive description of the review process is included in Section II– Plan Review Process. A brief summary of each phase of the plan review process is as follows:

1. Plan Review Process Overview

a. Pre-Application Meeting

Prior to developing plans, applicants and/or their representatives are required to schedule a pre-application meeting with the Township, their consultants and local agencies to discuss the following: design concepts, site compliance with ordinances and standards, and the proposed work is in general, feasible. At a minimum, a sketch plan or concept plan should be submitted by the applicant to the Office to distribute for review not less than two weeks before the meeting date. All applicable fees shall be paid by the applicant and the Township will schedule this meeting to be held at the Township Civic Center (located at 7200 S. Huron River Drive, Ypsilanti MI, 48197). The Township will forward invitations to all applicable local agencies. It is intended that the applicant will receive feedback from the reviewing agencies to facilitate and streamline the plan review process.

b. Site, Sketch or Plot Plan Review

The Township OCS will require that each development that is subject to site plan, sketch plan or plot plan review per the ordinance, create and submit a plan for review. The Township OCS will also determine if the review will need to be approved by the planning commission or be approved administratively. A final site plan may also be required based on the Township Ordinances. The applicant shall submit plans and fees to all applicable agencies. These submittals can be coordinated through the Township OCS Department. With submittals, review fees shall be paid to the Township OCS and in accordance with the adopted Township Fee Schedule to the Township OCS for tracking and distribution. It should be noted that other agencies, including YCUA, WCRC and the WCWRC may also have review fees that are not covered by those collected at the Township. The Township and / or their consultants and other agencies will then review the plans and prepare letters to be sent back to the Township OCS generally within three weeks of distribution. If OCS staff determines the plans to be in good order, then OCS staff will present the submitted plan to the Township Planning Commission for action. The Planning Commission may approve, approve with conditions, table, deny or make a recommendation to the Township Board. More detail regarding preliminary site, sketch and plot plan reviews can be found in Section II.

c. Detailed Engineering Plan Review

Prior to proceeding to construction or obtaining Township Board approval of the final site plan (where required), the applicant shall submit detailed engineering and soil erosion and sedimentation control plans for review. The detailed engineering plan phase represents an in-depth review of the design plans that includes verifying site grading, water supply, wastewater system, storm water designs and paving improvements. The applicant shall submit signed and sealed plans by a licensed State of Michigan Professional Engineer, a detailed engineering submittal form (included in Appendix B), an engineer's opinion of cost and the appropriate review fees to the OCS. The OCS staff will then distribute the plans to their consultants and other agencies to review. Review and approval by all applicable agencies is required prior to commencement of construction activity. More detail regarding the detailed engineering review can be found in Section II.

d. Permit Requirements from Other Agencies

As part of the design phase of the project, the applicant shall explore all requirements of any impacted public infrastructure. Further, as the site improvements are engineered and developed, the applicant shall be aware that proposed improvements may result in having to obtain approvals, permits or waivers from various agencies. Aside from the Township Planner, Engineer and YCUA reviews that are required, the applicant is encouraged to review the list (Section I.B.1.) of various utilities and government entities owning facilities that are typically impacted as part of work in the Township. The applicant is strongly encouraged to contact these agencies early in the design process to discuss potential impacts to the site.

2. Pre-Construction Phase

After receiving plan approvals or waivers from all affected agencies and all applicable Township approvals, the applicant shall compile and submit all relevant items requested by the Township, YCUA or the Township Engineer. Once these items have been properly completed the applicant will be able to proceed with construction activity.

a. Pre-Construction Requirements

Upon approval of detailed engineering plan, a letter outlining required fees, escrows, performance and maintenance guarantees, and insurance will be prepared and forwarded to the applicant. This letter provides a detailed calculation of the required escrow account deposit based on the amount of infrastructure proposed by the applicant and assumed production rate. The applicant acknowledges understanding of the document by submitting all applicable documents and attending the pre-construction meeting. If any of the items listed in this letter are not in place prior to the start of the pre-construction meeting the Township and/or YCUA holds the right to reschedule the pre-construction meeting to a later date when all items have been properly submitted to the satisfaction of the Township, the Township Engineer and YCUA.

b. Performance Guarantees

As part of the site development process, Ypsilanti Township requires that all projects post sureties to ensure the timely and complete construction of approved site infrastructure. The applicant shall furnish security and guarantee in accordance with Section 2307, Security for Completion of Improvements and Section 2308, Guarantee, of Appendix A – Zoning of the Charter Township of Ypsilanti Code of Ordinances.

- i. The Township will require a performance guarantee in an amount not less than 100% of the engineer's opinion of cost for the storm water management system, grading, paving, SESC, landscaping and other site related improvements (excluding the building) as defined in item I.C.1.c. prior to construction. An irrevocable standby letter of credit shall automatically renew on its own term for periods of no less than one year unless written notification to Township from the financial institution is received sixty days prior to its expiration date. This security shall remain on deposit with the Township until recommendation of final acceptance of the infrastructure improvements is

given by the Township Engineer. At the time of final acceptance, the performance guarantee will be returned to the applicant.

Partial releases of the storm water management system, grading, paving, SESC, and landscaping performance guarantee may be granted prior to acceptance upon request of the applicant, provided commensurate construction is satisfactory. In such cases the minimum retained balance of the guarantee shall be 25% of the original amount. Any reduction of these guarantees will only be considered after a written request has been submitted to the Township OCS during construction and after substantial completion.

- ii. In addition to the security and guarantee required by the Township noted above, the applicant shall post with YCUA guarantee for completion of the water supply system and wastewater system improvements as depicted on the approved detailed engineering plans.

The guarantees for YCUA shall be presented in the form of a cashier's check or irrevocable standby letter of credit for 100% of the engineer's opinion of cost for the proposed water supply system and wastewater system improvements, as defined in item I.C.1.c. An irrevocable standby letter of credit shall automatically renew on its own term for periods of no less than one year unless written notification to YCUA from the financial institution is received sixty days prior to its expiration date. This security shall remain on deposit with YCUA until final acceptance of the water supply system and wastewater system improvements as public utilities by the YCUA Board of Commissioners. At the time of final acceptance, the performance guarantee will be returned to the applicant upon receipt of a two-year maintenance and guarantee security.

Partial releases of the water supply and wastewater performance guarantee may be granted prior to acceptance upon request of the applicant, provided commensurate construction is satisfactory. In such cases the minimum retained balance of the guarantee shall be 25% of the original amount. Any reduction of these guarantees will only be considered after a written request has been submitted to YCUA during construction and after substantial completion.

- iii. A record drawing and easement guarantee in the form of a cashier's check is required prior to proceeding with construction. The Township Engineer will determine this amount based on an estimate of what it would take for the Township Engineer to complete this work. This deposit shall be made to either YCUA or the Township at the same time the construction services escrow is established. If AutoCAD drawings are not provided immediately following detailed engineering approval, the cost will also be based on performing a full topographical survey.
- iv. Additional guarantees may be required by other affected agencies.

c. Construction Fees, Escrows and Other Deposits

All past review fees not paid to date to either the Township or YCUA must be paid in full prior to commencement of construction.

All YCUA trunk line and transmission charges, YCUA benefit charges, YCUA tap fees and the construction phase escrow deposit shall be paid to YCUA prior to the start of any construction. Information regarding trunk line and transmission charges, benefit charges, and tap fees are available by contacting the YCUA Engineering Department at 734-484-4600. All fees should be verified with Ypsilanti Township and/or YCUA for annual updates.

- i. The applicant shall establish a construction phase escrow account in accordance with Section 2306, Fees, of Appendix A – Zoning of the Charter Township of Ypsilanti Code of Ordinances and as specified herein to cover costs associated with the inspection of all public improvements. This account shall be maintained by either Ypsilanti Township or YCUA.
- ii. The construction phase escrow deposit amount will be determined based upon one of the following methods:
 - The deposit will be based on the estimated duration of the construction operations based on typical construction production rates.
 - The deposit may be adjusted based on the schedule proposed by the applicant's contractor. Said schedule shall be provided to the Township Engineer no later than one week prior to the pre-construction meeting.
- iii. On deposits made with the Authority, YCUA will add a non-refundable administrative fee amounting to 1% of the total construction cost as outlined on the approved final engineer's opinion of cost. This fee shall be paid at the time the construction phase escrow account is established.
- iv. On deposits made with Ypsilanti Township, the Township will add a refundable administrative fee amounting to 1% of the total construction cost as outlined on the approved final engineer's opinion of cost. This fee shall be paid at the time the construction phase escrow account is established. Any money left over when the project is complete will be released.
- v. The applicant shall deposit the construction phase escrow monies with Ypsilanti Township or YCUA at least 48 hours prior to the pre-construction meeting. For smaller projects, typically those that do not include underground utility construction, the Township may have the construction phase escrow deposit placed with the Township OCS Department. Instructions regarding the construction phase escrow and with whom it is to be placed will be provided in the pre-construction requirements letter from the Township Engineer. The applicant shall provide the Township Engineer with a copy of the receipt verifying that the appropriate deposit has been made with either entity.
- vi. In addition to the observation of the public improvements, the escrow account will be used to reimburse YCUA and/or the Township Engineer for construction phase effort including review of any field design changes or evaluations/interpretations of the plans, review of record drawings and easements, and any other work associated with bringing the site into conformance with the standards.

- vii. Construction phase services will be invoiced monthly against the construction phase escrow account based upon the established hourly rate by YCUA and/or the Township Engineer. The Township engineer will track these escrow accounts and if necessary send notifications to the attention of the Township, YCUA, and the applicant if production rates are less than anticipated, and create the possibility of a deficit or negative balance. The Township engineer will monitor and send notices to the Township, YCUA and the applicant at 50% escrow depletion and 90% escrow depletion if the actual production rate in the field is behind the rate in which escrow is being depleted. If additional deposits are required, then YCUA or the Township will determine an appropriate amount using the same method and adjusting production rates to an appropriate and more realistic level.
- viii. Prior to reaching a negative balance, all construction services will be stopped until the applicant deposits additional escrow monies with YCUA or the Township. In addition, YCUA will add a nonrefundable administrative fee amounting to 5%, and the Township will add a refundable administrative fee amounting to 5%, of the additional escrow deposit to be paid at the time the additional funds are deposited with YCUA. Prompt attention to maintaining the account will prevent construction operations from being stopped and/or occupancy permits withheld.
- ix. Upon formal acceptance of the project, any funds remaining in the construction phase escrow account will be returned to the applicant.

d. Insurance

Prior to the construction the applicant’s contractor will procure and maintain, during the term of the project, public liability and property damage insurance with a responsible insurance company which meets the approval of the Charter Township of Ypsilanti. The amounts must be adequate to protect the public and all parties of interest, and will not be less than the limits set forth as follows:

Type of insurance:

- i. Workmen’s Compensation Insurance and Employer’s Liability. Limits as required by laws of the State of Michigan
- ii. Public Liability and Property Damage:
 - Bodily Injury: Each Occurrence: \$500,000
 - Aggregate: \$1,000,000
 - Property Damage: Each Occurrence \$250,000
Aggregate \$500,000
- iii. Owner’s and Contractor’s Protective Liability and Property Damage:
 - Bodily Injury: Each Occurrence \$1,000,000
 - Property Damage: Each Occurrence \$250,000
Aggregate \$500,000
Or combined single limit of \$1,500,000
- iv. Motor Vehicle, (including Owner, Hired and Non-Owned Vehicles):
 - Bodily Injury: Each Occurrence \$500,000

- Property Damage: Each Occurrence \$200,000
Combined single limit: \$1,000,000

Policies will be made available to the Charter Township of Ypsilanti and YCUA for examination as to their validity. Any undesirable exclusions deemed improper by legal opinion rendered to the Township and/or YCUA will be required to be removed.

Underground construction, where applicable, will be specified in the coverage.

Certificates of coverage signed by the insurance carriers will include a guarantee that 30 days written notice will be given by the insurance carrier to the Township and YCUA prior to cancellation of, or any change in, the respective policies. In the event that the insurance is cancelled, operations will cease prior to the cancellation date and will not resume until evidence is provided that proper insurance is again in effect.

Additional Named Insured under Owners and Contractors Protective Liability and Property Damage Insurance will include the Charter Township of Ypsilanti; the Ypsilanti Township Board of Trustees, jointly and individually; all Ypsilanti Township employees; the City of Ypsilanti; the Ypsilanti City Council, jointly and individually, and all City of Ypsilanti employees; the YCUA Board of Commissioners, jointly and individually; all YCUA employees, agents, and consultants, individually.

e. Construction Drawings

Prior to the pre-construction meeting, the applicant's design engineer shall submit six sets of the approved detailed engineering plans to the Township Engineer for processing and distribution to the appropriate parties. In addition, digital versions of the construction drawings shall be provided that include both AutoCAD and Adobe PDF files. AutoCAD data shall be projected to State Plane Coordinates and shall use NAVD '88 vertical datum.

3. Construction Phase

a. Pre-Construction Meeting

Prior to starting any construction operations, the applicant must obtain all required permits and attend a pre-construction meeting. Unless otherwise specified, all meetings will be held at the Township Civic Center. The applicant shall contact the Township OCS to schedule the meeting. The Township shall notify all required and applicable attendees in writing outside of the local agencies listed in Section I.B.1.

Attendees at the pre-construction meeting (as well as any project progress meetings) shall include representatives from the Township, YCUA, the Township Engineer, the Building Department Director, the Fire Marshal, the applicant, the applicant's design engineer, the applicant's prime contractor and underground contractor. In addition, representatives from any utility companies whose facilities may be affected by the project as well as any state, county or other agencies having jurisdiction over portions of the project shall be invited to attend. It shall be the responsibility of the applicant to contact the Township Engineer a minimum of 10 calendar days prior to the desired start of construction to

schedule the pre-construction meeting. The pre-construction meeting shall be scheduled a minimum of 5 days prior to the start of construction. The pre-construction meeting will not be scheduled until all required approvals and documentation is received by the Township OCS. Pre-construction meeting forms are included in Appendix C.

b. Construction

The Township, YCUA or designated representative(s) of those entities will provide observation of construction of all public utilities and improvements within 10 feet of any proposed or existing building. Observation will be full time on water supply systems, wastewater facilities, storm water management facilities, sidewalk ramps connecting to the street or sidewalk along common areas, and approaches in the public right-of-way. Part time observation will be performed for all on-site paving, grading, and soil erosion and sedimentation control measures. On all part time observation items, the contractor or applicant shall provide third party certifications, density and/or material testing reports if requested by the Township, YCUA or designated representative(s) of those entities.

Any work occurring within 10 foot of any existing or proposed building may require the inspection and permit of the Ypsilanti Township Building Department. Prior to working within this 10 foot envelope, the Ypsilanti Township Building Department must be contacted.

The Washtenaw County Road Commission will provide inspection for work within the existing public right-of-way and on any road improvements that will be dedicated as public facilities.

The Washtenaw County Water Resource Commissioner's office will provide inspection for work associated with county drains or other water courses within their jurisdiction. The Township, or their designated representative(s) may provide assistance observing portions of the project for the other agencies.

The applicant or the applicant's contractor shall notify the Township, YCUA or designated representative(s) of those entities a minimum of 3 working days prior to the start of any construction operations.

All improvements requiring observation shall be field staked in accordance with the approved detailed engineering plans. The applicant shall be responsible for the field staking and provide appropriate cut sheets to the Township, YCUA or designated representative(s).

Deviations from the approved detailed engineering plans that are determined by the Township, YCUA or designated representative(s) to be significant will require review and approval of the Township, YCUA or designated representative(s) prior to staking and construction of the revised work. Deviations that are deemed to be significant will need to be submitted in writing (with revised plans as necessary) to the Township, YCUA or designated representative(s) for review.

The applicant's contractor shall be responsible for ensuring that all construction operations are conducted in conformance with the current MIOSHA safety standards.

c. Substantial Completion

At the completion of the installation and successful testing of all underground utilities and completion of the majority of paving improvements, said facilities will be subject to a preliminary walk-through inspection. This preliminary walk-through may include representatives from YCUA, the Township, the Township Engineer, and other appropriate agencies. At this meeting a preliminary punch list will be generated and distributed by the Township Engineer. Once all punch list items are addressed to the satisfaction of the Township Engineer a substantial completion letter will be issued by the Township Engineer. Only after this point can performance guarantees be reduced. This may be accomplished by submitting a request in writing to the Township OCS and/or YCUA depending on the guarantee that being considered for reduction. The applicant should understand that substantial completion does not in any way represent final acceptance. The substantial completion letter will indicate all remaining items that need to be completed. After substantial completion, the utilities are still under the ownership of the applicant and not that of the respective agency.

During the time between the substantial completion and final acceptance of the underground utilities and paving improvements, said facilities will be subject to periodic inspection by the Township, YCUA or designated representative(s) during the completion of all surface improvements (commercial buildings, residences, etc.).

Upon the completion of all improvements associated with the project, underground utilities and paving improvements will be subject to a final walk-through inspection. No facilities to be designated as public will be accepted until they have passed the final walk-through inspection. The applicant shall be responsible for providing all labor and equipment to accommodate inspection of the system(s) by the governing municipality and/or agencies having jurisdiction over the project. A project cannot receive a final walk-through inspection until all landscaping is complete and all portions of the site are complete. For residential projects, a final walk-through inspection will not be conducted until the site is 90% complete (Certificate of Occupancy issued). All final walk-through inspections shall include one representative each from YCUA, the Township, the Township Engineer and the applicant's representative.

4. Project Completion

a. Record Drawings

To ensure that accurate records exist for all newly installed infrastructure within Ypsilanti Township, a set of record drawing requirements has been created. All projects require that accurate record drawings are produced and approved in advance of final project acceptance.

It is required that the applicant submit a complete digital file of the construction drawings including all details, plan and profile views to both Ypsilanti Township and YCUA at the time of the pre-construction meeting. The digital file should follow the template for digital submittals that is located in the Digital Appendix.

The applicant shall post a guarantee in an amount determined by YCUA and/or the Township Engineer to ensure completion of the record drawings in a timely

manner. The record drawing guarantee shall be presented in the form of a cashier's check, cash deposit, or irrevocable standby letter of credit.

The applicant has 90 calendar days after substantial completion (from date of the issued substantial completion letter) to prepare and submit to the Township Engineer an approvable set of record drawings. These record drawings will be submitted in a digital format (AutoCAD and pdf) and on bond and Mylar. Digital record drawing specifications are included on the Digital Appendix CD.

In the event the applicant fails to submit the required approvable record drawings to the Township Engineer within the 90 day period, the Township/YCUA will utilize the applicant's record drawing guarantee to have the required record plans prepared by the Township Engineer.

If this occurs, the Township and/or YCUA will direct the Township Engineer to prepare the record drawings utilizing the digital plans previously submitted. Once this notification to proceed has been given to the Township Engineer, delivery of the record drawings to the Township/YCUA will be made within 90 days of that date.

A copy of the record drawing requirements checklist is provided in Appendix A.

b. Easements

The applicant shall have easement documents prepared for all public sanitary sewer and water main on site unless located in a public right-of-way. In addition, any public storm sewer not in a public right-of-way or ingress/egress easements shall have easement documents prepared and submitted to the Township Engineer and the appropriate legal counsel for review and approval. Once easements are approved, the easement shall be forwarded by the applicant to the County Register of Deeds and recorded. Copies of recorded easements shall be forwarded to the Township Engineer, YCUA and the Township for their records. Sample easement documents for water supply and wastewater systems can be found in Appendix D of this document.

c. Grading Certificate

The applicant shall submit a grading certificate upon the completion of construction certifying that site grading was completed in accordance with the approved detailed engineering construction plan. The grading certificate shall be signed and sealed by a Professional Engineer or Surveyor licensed to practice in the State of Michigan. A blank grading certificate is provided in Appendix E of this document.

d. Maintenance and Guarantee Surety

Prior to final acceptance by the YCUA the applicant shall post with YCUA a two-year Maintenance and Guarantee security. The guarantee shall be presented in the form of a cashier's check or irrevocable standby letter of credit for 50% of the engineer's opinion of cost of the proposed water supply system and wastewater system improvements, as defined in item I.C.1.c. It should be noted that other agencies having jurisdiction over the project or any portion thereof might also require maintenance guarantees.

e. Final Acceptance

Final acceptance will not be made until all improvements shown on the approved detailed engineering plans are completed. In addition, all other requirements as outlined in the pre-construction requirements letter or, if applicable, a development agreement must be completed. For residential developments, final acceptance of the water supply system and wastewater system improvements will not take place until at least 90% of the residences are built and occupied.

SECTION II – SITE PLAN REVIEW PROCESS

A. Introduction

Site plan review is a process to review new developments or changes to existing developments. The goals of the site plan are to achieve efficient use of the land, protect natural resources, minimize adverse impacts on nearby properties, and encourage cooperation and consultation between the applicant and Township to facilitate accordance with the Township's land use objectives.

Per Section 2115 of the Township Zoning Ordinance, preliminary site plan review and approval are necessary for: a change of use, expansions or additions, development of subdivisions, condominiums, site condominiums, multiple family dwellings, commercial, office or industrial buildings. Please review Section 2115 for specific items that must be included with your plan submittal.

1. Pre-application meeting

The applicant is encouraged to schedule a meeting with the Township Office of Community Standards to discuss the project, submittal requirements and review procedures. The purpose of this meeting is to discuss applicable standards and technical issues, and to determine the appropriate type of review process based on Table 2115.1 of the Township Zoning Ordinance.

Within 7 days of the meeting, Township staff will provide the applicant and all attendees with a sign in sheet including contact information for all attendees and a written report of the comments and/or suggestions provided during the pre-application meeting.

2. Preliminary site plan submission

Applicant shall submit a preliminary site plan with the specific items in Section 2115. Review fees shall be enclosed as part of a complete site plan application.

3. Preliminary
Site Plan
distribution of
application

The Office of Community Standards will process and distribute the provided site plan application to the following review agencies for comment (Township Planner, Township Engineering, Township Fire Department, Township Assessing Department, Ypsilanti Community Utility Authority (YCUA), Ann Arbor Area Transportation Authority (AAATA), and the Washtenaw County Sheriff's Department). A separate fee to YCUA is required. This process may take up to 3 weeks to complete. The applicant is responsible for delivering plans, appropriate applications and fees to the following agencies: Washtenaw County Road Commission (WCRC), Washtenaw County Water Resource Commissioner (WCWRC), and, if applicable, the Michigan Department of Transportation (MDOT).

4. Planner/Staff
review

Once all reviewing agencies have completed the necessary reviews, the Township Planning staff will determine whether the application is complete and can be presented to the Township Planning Commission or if the plans must be revised and then resubmitted for further review. Plans that are found not to be completed per the adopted ordinances will not be presented to the Planning Commission for consideration. Please note that any additional reviews will require that the initial fee be resubmitted for the additional preliminary site plan review(s).

5. Preliminary site
plan Planning
Commission
approval/
recommendation

At the Planning Commission meeting, after a presentation by staff and then the applicant, the Planning Commission may either postpone action or recommend approval or denial to the Township Board (when applicable), approve, approve with conditions, or deny the submitted application.

6. Township Board approval (if necessary)

The Township Board grants preliminary site plan approval for the following developments: subdivisions, condominiums or site condominiums, planned developments, multi-family residential developments, and wireless communication towers. Written correspondence outlining the recommendation or decision of the Township Board will be sent to the applicant within 7 days of said decision.

Effect of preliminary site plan

Any preliminary site plan approval expires after one year from the date of approval. The applicant may request a one year extension from the Planning Commission, provided a written request is received before the expiration date and the site plan complies with current standards.

7. Final site plan submission

The applicant shall submit a final site plan with the specific items found in Section 2115.

8. Final site plan distribution of application

The Office of Community Standards will process and distribute the final site plan application to the following review agencies for comment: Township Planner, Township Engineering, Township Fire Department, Township Assessing Department, Ypsilanti Community Utility Authority (YUCA), Ann Arbor Area Transportation Authority (AAATA), and the Washtenaw County Sheriff's Department. A separate fee to YCUA. This process may take up to 3 weeks to complete. The applicant is responsible to deliver plans, appropriate applications and fees to the following agencies: Washtenaw County Road Commission (WCRC), Washtenaw County Water Resource Commissioner (WCWRC), and if applicable, the Michigan Department of Transportation (MDOT). Once all reviewing agencies have completed the necessary reviews and approved said project, the Township Planning staff will review final site plan.

9. Planner/Staff
review and
Approval

Final site plan approval may be given administratively when all conditions set forth herein for final site plans are complied with except the planning commission may, at the time of preliminary site plan approval, require final site plan approval by the commission as well.

10. Township
Board approval
(if necessary)

The Township Board shall grant final site plan approval for the following developments: subdivisions, condominiums or site condominiums, planned developments, multi-family residential developments, and wireless communication towers. Written correspondence outlining the decision of the Township Board will be sent to the applicant within 7 days of said decision.

Effect of final site
plan approval

The approval of any final site plan, other than subdivisions, expires one year after the date of approval, unless actual construction and development have been commenced in accordance with said site plan. If construction and development begins within the one year period, then the approval shall continue for five years from the construction date. If substantial construction and development does not occur for a year, the approval will expire.

SECTION II – SITE PLAN REVIEW PROCESS CHECKLIST

Information required for pre-application meeting:

- Fees
- 7 – 11 x 17 copies of the proposed plan
- 1 PDF copy of the proposed plan
- Completed pre-application meeting application
- Proof of property ownership

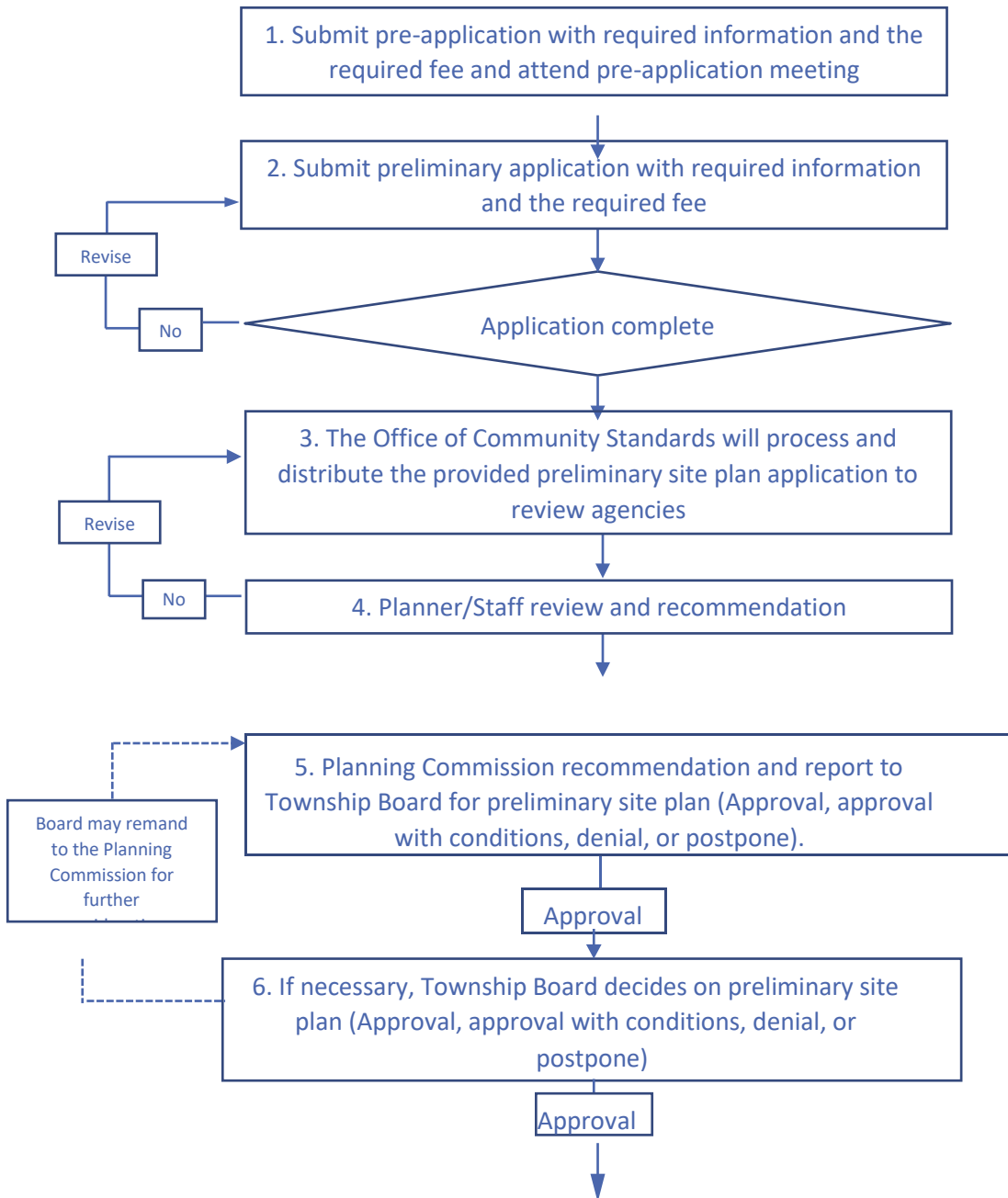
Information required for preliminary site plan submission:

- The applicant shall submit 7 signed and sealed copies (24" x 36"), one reduced copy (11" x 17") and one digital copy (PDF format).
- Two signed and sealed copies (24" x 36") shall be provided to the Washtenaw County Road Commission and Water Resources Commissioner's Office for Review. The applicant is responsible for delivery of the plans, application and applicable review fees to these agencies. The Township will complete distribution to Ypsilanti Community Utility Authority (YUCA), but separate payment is required.
- The site plan review application signed and dated by the applicant and the property owner if not the same.
- Proof of property ownership
- A Woodland Protection application or No Tree Affidavit (if applicable)
- A copy of the Traffic Impact Questionnaire.
- A written description of the project.
- A check in the amount stated within the adopted fee schedule. Please contact Office of Community Standards at 734-485-3943 or by email at planningops@ytown.org for an exact amount and breakdown of the required review fees. Plans will not be accepted without the payment of the noted fee. Please also note, the same site plan review fee will be charged for each subsequent submittal per the adopted fee schedule.

Information required for Planning Commission:

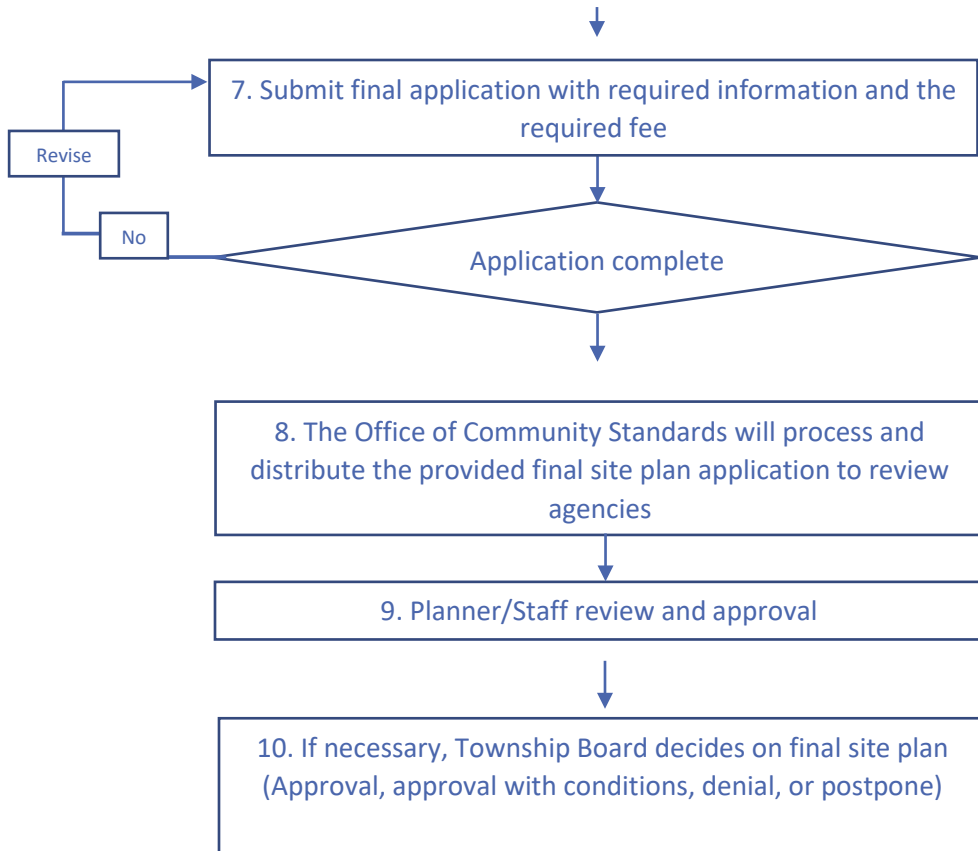
- Three (3) full size sets of site plan (24" x 36")
- One digital copy of site plan (PDF format)
- Color Elevation Drawings (PDF format)

FLOWCHART



Continue flowchart on next page

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III. TOPOGRAPHIC SURVEY

General Requirements

1. A complete topographical survey is required for all proposed projects. A metes and bounds legal description of the project site shall be provided on the plans. Property lines shall be indicated by bearing and distance in the plan view. All existing easements shall also be shown on the plan view of the existing conditions.
2. A minimum of two benchmarks are required for vertical control. All benchmarks shall be clearly indicated on the plans. All elevations shall be to North American Vertical Datum – 1988 (NAVD-88).
3. Horizontal control shall be established for each site utilizing Michigan State Plane Coordinates, Michigan South Zone Coordinate System NAD 83 (CORS).
4. Existing offsite elevations must be given at a minimum of 50 feet and 100 feet abutting the entire perimeter of the site. Grades will be indicated at all property corners and along all property lines. On-site, intermittent elevations and/or defined contours (minimum contour interval of 2 feet) are required to establish the existing site drainage patterns.
5. Existing features shall be located and shown within 100 feet of the project. Existing features to be shown shall include, but may not necessarily be limited to the following items:
 - a. Ditches.
 - b. Culverts.
 - c. Water supply system, storm water management and/or sanitary sewer facilities, including inverts and casting elevation at all structures.
 - d. Gas, telephone, electric and cable television lines, including manholes and/or utility poles.
 - e. Pedestrian facilities.
 - f. Trees and other landmark vegetation.
 - g. All streams, lakes and/or county drains with names shown.
 - h. Existing buildings and permanent structures.
6. Existing adjacent roads and existing right-of-way or easement lines shall be shown on the plans and shall extend across the entire site with grades shown on both sides of the road for:
 - a. Right-of-way or easement line.
 - b. Ditch centerline.
 - c. Top of bank.
 - d. Edge of shoulder.
 - e. Edge of pavement or top of curb.
 - f. Crown or centerline.

IV. WATER SUPPLY SYSTEM

General

1. Water supply system improvements shall be designed and constructed in accordance with the requirements of the Michigan Safe Drinking Water Act, Act 399 of the Public Acts of 1976, as amended; as well as the latest revisions of the standards and manuals of practice published by the American Water Works Association (AWWA), the Great Lakes Water Authority (GLWA), and as specified herein.
2. All water supply system improvements will require the review and approval of Ypsilanti Community Utilities Authority (YCUA). The majority of water supply system improvements will also require the review and approval of the Michigan Department of Environment, Great Lakes, and Energy (EGLE) and in certain instances GLWA. Water supply system components are typically considered public facilities when two or more service connections are made to the same water main. In most instances, multiple unit developments in particular, the water supply system may have to be public even though the project has one owner. The extension of water mains will generally be required across the entire frontage of the site.
3. YCUA approval will be required for connection of private water supply systems (“customer site piping”) to the public water supply system. Installation of and/or improvements to customer site piping will require installation of a master meter and/or suitable backflow prevention devices at any interfaces between the public water supply system and customer site piping.
4. Water supply system improvements identified in the latest revision of the YCUA Water System Master Plan may be required as part of the project. The applicant shall contact YCUA to determine if any improvements identified in the latest revision of the YCUA Water System Master Plan will need to be incorporated as part of the project.
5. Plan and profile views shall be provided for all proposed water supply system improvements including water mains and fire hydrant leads. The plan and profile shall be presented on the same plan sheet and shall be vertically oriented.
 - a. A water main quantity list shall be provided on the cover sheet of the detailed engineering plans. The quantity list shall be delineated by existing or proposed road right-of-way or easement.
 - b. The following information must be shown in the plan view of proposed water supply system improvements:
 - i. Type, class and size of pipe.
 - ii. Length between fittings and/or appurtenances.
 - iii. Water service locations and sizes. In addition to domestic water services, water services for fire suppression and/or irrigation purposes must be shown on the plans.

- iv. Where required, a dedicated water main easement must be shown on the plans. The easement width shall be the greater of the following: Twice the depth of bury plus the pipe diameter plus 2' (rounded to the next largest full foot), or 15'. Where water main is adjacent to and parallel to the right-of-way, a water main easement must be extended across the entire frontage of the property.
 - c. The following information must be shown in the profile view of proposed water supply system improvements:
 - i. Type, class and size of pipe.
 - ii. Length between fittings and/or appurtenances.
 - iii. Top of casting elevation on valve wells and/or boxes as well as the finished grade for fire hydrants.
 - iv. Crossing of all existing and proposed utilities, including leads.
 - v. Granular backfill, trench details, special bedding, bores and/or other special construction methods.
 - vi. Existing and proposed ground elevations.
 - d. Design details of joints and joint restraint, including any necessary design calculations, shall be provided on the plans.
 - e. Plans showing any proposed water supply system improvement, public and/or private, shall be accompanied by the YCUA water supply system standard detail sheets. The standard details are included in the Digital Appendix.
6. Connection of individual residences or buildings to water distribution mains will require the submittal of a utility service plan for review and approval by YCUA. Utility service plans can be submitted on 8½" x 11" paper or PDF document. The following information must be shown on the utility service plan:
 - a. The applicant's name, address, telephone number, and electronic mail address (if available).
 - b. The name, address, telephone and fax numbers, and electronic mail address for the applicant's engineer/surveyor.
 - c. The utility service plan shall be prepared to a scale of 1" = 40'. The following items must be shown on the utility service plan:
 - i. A legal description of the parcel, including tax identification number, along with a sketch showing all property lines including the bearing and distance.
 - ii. All sides of the proposed or existing building.
 - iii. Existing and/or proposed driveways and sidewalks, including materials and thicknesses.
 - iv. Existing and/or proposed utilities on the parcel or in the adjacent public right-of-way or easement. Utilities to be shown include but may not necessarily be

limited to: water supply, wastewater, storm sewer, gas, telephone, electric, and cable television.

- v. Existing and/or proposed natural features such as trees, landscaped areas, berms, and ditches/drainage courses.
 - vi. Existing and/or proposed water services, building sewers, and storm sewer laterals (for sump pump discharges, if applicable). Information shall include proposed material and size. Dimension all pipes from the building corners; dimension the curb stop and box from the building corners.
7. Trunk line and transmission charges, benefit charges, as well as tap fees and meter fees associated may apply to water supply system improvements and/or connections to the existing water supply system. The schedules for these fees can be found on the YCUA website.

Design Criteria

1. Water Transmission and Distribution Mains

- a. The minimum size pipe allowed for use in the distribution system is 8" diameter. Other allowable pipe sizes for use in the distribution system are 12" and 16" diameter. The larger diameter distribution mains may be required as minimum for distribution on non-residential sites, major streets, collector streets and elsewhere as directed by YCUA. Water mains larger than 16" diameter are considered transmission mains.
- b. Water supply systems shall be designed to provide service from a double source of supply ("looped main") or, with the written approval of YCUA, to be provided service by a double source of supply in the future when adjacent properties are developed. Approval of a single source of supply will require the applicant to post a guarantee with YCUA to allow for provision of a double source of supply if adjacent properties do not develop within a reasonable time.
- c. Terminal dead end water mains with domestic service connections are not permitted without the written approval of YCUA. Where terminal dead end water mains are permitted, a gate valve and fire hydrant shall be provided at the terminus of the water main – this will be the only fire hydrant allowed on the dead end water main. The following are the maximum allowable lengths for terminal dead end water mains:
 - i. 40' for 6" diameter fire hydrant service pipe.
 - ii. 600' for 8" diameter water distribution mains (residential areas only).
 - iii. 1,000' for 12" diameter and larger water distribution mains.
- d. Wherever possible, water mains and appurtenances shall be located outside the influence of existing or proposed pavement. Within existing or proposed public road rights-of-way, water main alignments and appurtenance locations should be in accordance with the requirements of the agency having jurisdiction. Alignments and locations within private road easements should be in accordance with the requirements of the agency having jurisdiction over the adjacent public

road right-of-way. Water main alignments and appurtenance locations in easements outside of public road rights-of-way or private road easements will be evaluated individually.

- e. A minimum 10' horizontal separation shall be maintained between water main and sanitary sewers and/or storm sewers. A minimum 5' horizontal separation shall be provided between water mains and other underground utilities and/or structures.
 - f. Where water main alignments cross alignments of other utilities, the angle between the horizontal alignments at the crossing shall not be less than 45°.
 - g. Water main shall be designed and constructed with a minimum 5½' depth of cover over the top of pipe as measured from the proposed final grade. A minimum 18" vertical clearance shall be maintained between water mains and other underground utilities. Where the vertical alignment of the water main must be deflected in order to achieve the required vertical clearance, the length of the deeper main shall be kept to a minimum and standard 45° bends shall be used to achieve the necessary deflection. Depending on groundwater conditions, vertical alignment changes may be allowable utilizing joint deflection only when the elevation change is less than or equal to 18" and the depth of the water main remains above the groundwater elevation. Soil borings obtained from the site shall be provided to YCUA in order to determine if joint deflection will be acceptable.
 - h. Where changes in finish grade occur subsequent to installation of water mains or are proposed over an existing water main, all manhole castings, valve boxes, curb stop boxes, hydrants and blow-offs shall be adjusted to the revised grade as part of the project. When such changes in finish grade will result in a depth of cover of less than 5' or more than 7', the existing water main shall be relocated as part of the project in accordance with the requirements of item II. Design Criteria.1.g., Water Supply System, Design Criteria, Water Transmission and Distribution Mains.
 - i. Tracer wire shall be provided with all water main.
2. Joint Restraint
- j. Joints shall be restrained per the pipe material manufacturer's recommendations. For ductile iron pipe, joint restraint shall conform to the most current edition of the Ductile Iron Pipe Research Association's (DIPRA) Thrust Restraint Design Procedure for Ductile Iron Pipe or as approved by YCUA.
 - k. Concrete thrust blocks will not be permitted except behind hydrant shoes and tapping sleeves. Use of concrete thrust blocks in other locations will not be permitted without the written approval of YCUA. Where allowed, concrete thrust blocks shall bear against undisturbed earth in all instances and shall have sufficient bearing area to develop the full resultant axial thrust of the pipe at test pressure. The concrete thrust block shall not cover fastener nuts and/or threaded connections that would hinder future maintenance or repairs of fittings or valve assemblies.

3. Valves

- a. General

- i. Water supply system improvements shall be designed to include adequate valves to properly isolate sections of water main and control flow and pressure as needed without adversely impacting significant portions of the system.
 - ii. All valves shall be installed in a three-piece, adjustable valve box with the following exceptions: Valves shall be installed in wells, with Type I adaptor by Adaptor, Inc., where the valve will be located within existing or proposed (1:1) influence of the road, or the valve is located on a water main larger than 16" diameter, or the valve is part of a tapping valve connecting to an existing water main requiring tapping valves to be in wells.
 - iii. Valves shall be located such that the valve box cover or valve well cover will not be in street pavements, sidewalks or driveways.
- b. Isolation Valves
- i. Isolation valves on water mains 16" diameter and smaller shall be gate valves and valves on water mains larger than 16" diameter shall be butterfly valves.
 - ii. Valves shall be placed such that no more than three valves are required to isolate any section of water main (four maximum). More than three valves to isolate a section of water main will not be permitted without the written approval of YCUA.
 - iii. No more than 800' of water main may be out of service for 8" diameter water mains: not more than ¼ mile of water main may be out of service for mains 12" diameter and larger.
 - iv. No more than 2 fire hydrants may be out of service.
 - v. No more than 24 single family residences or 30 multiple family residences may be out of service.
- c. Tapping Valves
- i. The connection of proposed water mains to existing water mains shall be accomplished by means of a tapping sleeve and valve unless the connection can be made without interrupting service to existing customers, if the existing water main is 16" diameter or larger, or as otherwise directed by YCUA.
 - ii. Use of a tapping sleeve and valve will also require a separate isolation valve downstream of the connection.
- d. Control Valves
- i. Valves to control flow and/or pressure may be required to ensure proposed water supply improvements will not adversely impact the existing system or that the proposed improvements will operate as intended without being adversely impacted by the existing system.
 - ii. Such control valves, when deemed necessary by YCUA, shall be included in the design of the proposed water supply system improvements.

4. Fire Hydrants

- a. Fire hydrants shall be located per the requirements of the Ypsilanti Township Fire Department (YTFD) and shall reference the current International Fire Code.
- b. Hydrants within residential areas shall be located between the back-of-curb and sidewalk between 2' and 10' of the back of sidewalk of the cross street at intersections. A minimum of 5' is required from a vehicular path. Hydrants not located at the intersections shall be located at the extension of the side property lines between lots.
- c. Spacing of hydrants along water transmission mains and around multiple family residential, commercial or manufacturing establishments shall be considered on an individual basis and shall be determined by consultation with YCUA and the Township Fire Marshal.
- d. The distance of the hydrant from buildings will depend on the height of the building. The hydrant will be located at least a distance equal to the height of the building from the building's exterior walls. At a minimum, fire hydrants shall be located at least 25' from the exterior wall of any masonry building, and at least 50' from any exterior wall of frame or equivalent construction, including brick and stone veneer.
- e. All buildings with sprinkler systems shall have a fire hydrant located within 100' of the fire pumper hose Siamese connection located on the building exterior.
- f. Proper access shall be provided to all hydrants. A minimum 20' wide aisle shall be provided between the travel way and the hydrant. No parking shall be allowed within 15' of each side of a fire hydrant (measured perpendicular from the centerline of the hydrant to the road or travel way).

5. Water Services

g. General

i. Size

- (a) Domestic water services shall be a minimum of $\frac{3}{4}$ " diameter in the Township and 1" diameter in the City. Larger diameter domestic water services will require the review and approval of YCUA.
- (b) Irrigation water services for single-family residences and multiple family residences and non-residential properties with a single water service to the entire building shall be no larger than the domestic water service upstream of the domestic water meter. Sizing of irrigation water services for multiple-family residences and non-residential properties where the irrigation water service will be connected directly to a YCUA distribution main will be evaluated individually.
- (c) Fire suppression water services shall be designed by the applicant and require the review and approval of YCUA.
- (d) Larger diameter water services, when approved by YCUA, shall be at least one standard size smaller than the water distribution main it connects to.

ii. Responsibility for Connections

- (a) Connections to YCUA distribution mains for single-family residential property that does not require a permit from an agency having jurisdiction over work within a public road right-of-way will be completed by YCUA, except in circumstances where YCUA is unable to complete such work due to elevated groundwater table, excessive depth of existing distribution mains, or similar extenuating circumstances.
- (b) Connections to YCUA distribution mains for single-family residential property that requires a permit from an agency having jurisdiction over work within a public road right-of-way shall be the responsibility of the applicant.
- (c) Connections to YCUA distribution mains for multiple-family residential and non-residential properties shall be the responsibility of the applicant.
- (d) Connections to YCUA distribution mains solely for fire suppression or irrigation purposes shall be the responsibility of the applicant.

iii. Location

- (a) Water services shall be connected to distribution mains such that the water service pipe within the public road right-of-way or easement is perpendicular to the centerline of the public road right-of-way or easement.
- (b) The minimum allowable horizontal separations between water services and other facilities are as follows:
 - (1) Other water services – 2' each.
 - (2) Sanitary sewer leads – 3'.
 - (3) All other utilities and structures – 5'.
- (c) The curb stop and box or shut off valve on a water service shall be located at the right-of-way line for water services within public roads and the easement line for water services outside of public road right-of-way.
- (d) Curb stop boxes and/or shut off valves shall be located such that the stop box cover, valve box cover, and/or manhole cover will not be in street pavements, sidewalks or driveways. Where curb stops are allowed to be located in a paved surface by YCUA, they shall be protected with an approved sleeve.

- iv. YCUA will be responsible for maintaining the water service(s) and appurtenances from the YCUA distribution main up to and including the curb stop and box or shut off valve. The property owner will be responsible for maintaining the water service(s) and appurtenances from the curb stop and box or shut off valve, including the outlet coupling, to the building.

h. Domestic

- i. Each individual residence or building connected directly to the YCUA distribution main shall have a separate water service and curb stop and box. Multiple-family residences may be served either through separate water services to each unit or through a single water service to the entire building.

Non-residential buildings, even those with multiple tenants, shall have a single water service as only one YCUA meter will be issued.

- ii. No domestic service connections will be permitted from 6" fire hydrant leads or transmission mains. Combined domestic or irrigation and fire suppression services will not be permitted.
 - i. Irrigation
 - i. Irrigation water services for single family residences shall be connected to the domestic water service immediately upstream of the domestic water meter. Irrigation water services for multi-family residences and non-residential properties may be connected either directly to YCUA distribution mains or to the domestic water service upstream of the domestic meter.
 - ii. All irrigation systems connected to the water supply system shall be equipped with an approved backflow prevention device. Suitable backflow prevention devices include double check valve assemblies, reduced pressure zone assemblies, and pressure vacuum breakers.
 - j. Fire Suppression
 - i. Fire suppression services shall be completely separate from either domestic or irrigation water services.
 - ii. Fire suppression systems directly connected to a YCUA distribution main only, with no physical connections to other supplemental water supplies, will not require backflow prevention provided that no antifreeze or other additives of any kind are used and the sprinkler system drains to the atmosphere.
 - iii. Fire suppression systems directly connected to a YCUA distribution main and also having supplemental supplies of non-potable water, or being located within 500' of a body of water, shall be isolated from the YCUA distribution main by an approved backflow prevention device.
 - iv. Fire suppression systems directly connected to a YCUA distribution main and which incorporate an elevated storage tank for fire protection shall be isolated from the YCUA distribution main by an approved double check valve assembly.
 - v. Fire suppression systems shall be equipped with detector checks to prevent cross connections with the metered potable water system internal to the building.
6. Meters
- a. General
 - i. Each residence or building connected to the YCUA distribution system shall be equipped with a meter on each water service entering the property. Multiple-family residences with a single water service will be provided a single meter. All non-residential properties will only be provided a single meter. The user will be required to pay to YCUA a service charge equal to the cost of the

meter upon making application for service. Ownership of meters will remain with YCUA.

- ii. YCUA reserves the right to review and approve the size of meter requested for each meter installation. For premises to be served by a 1¼" or larger water service the applicant shall provide to YCUA a complete itemized building fixture count for use in the sizing of the meter and service.
 - iii. Irrigation systems connected to the water supply system shall be equipped with a meter. Irrigation meters for properties with a single domestic water service to the entire building shall be no larger than the domestic water service upstream of the domestic water meter. Irrigation meters for irrigation water services connected directly to a YCUA water distribution main will be evaluated individually.
 - iv. Fire suppression services shall be equipped with a ¾" diameter detection meter.
- b. Meter Locations
- i. Water meters shall be located in basements, utility rooms, boiler or mechanical rooms. The meter shall be positioned a maximum of 24" from the service entrance outside wall and located a minimum of 18" to a maximum of 48" above the basement or lowest floor. The meter shall always be located in an easily accessible area which is heated and protected from the weather. The locating of water meters in such areas as crawl spaces and under kitchen sinks, etc., is not considered an easily accessible area. Nothing shall be stored or placed in the area of the meter which would hinder YCUA personnel from accessing the meter for the purpose of reading, inspecting, repairing, or replacing it.
 - ii. Meters on irrigation water services connected directly to YCUA distribution mains where the meter cannot be located within a building shall be installed in an above ground meter enclosure, such as Lok Box as manufactured by Hot Box or approved equal.
 - iii. All meters shall be installed in a horizontal orientation. No vertical installations will be permitted.
- c. Master meters for multiple-family residential and non-residential properties are permitted, subject to the approval of YCUA. Water supply system components downstream of master meters will be considered customer site piping. Operation and maintenance of customer site piping will be the responsibility of the customer. Upon acceptance of the water supply system improvements, ownership and maintenance of the meter and vault will be the responsibility of YCUA. Master meters will be reviewed on an individual basis and shall include such auxiliary equipment as deemed necessary by YCUA, including but not necessarily limited to the following:

- i. Master meters shall be installed in an underground vault with adequate access provided to operate and maintain the meter, isolation valves, and appurtenances.
 - ii. Master meter vaults shall be protected from physical damage during a 100-year flood and remain operable and accessible during a 25-year flood.
 - iii. Master meter vaults and equipment shall be protected from vehicular traffic. Provisions for maintenance vehicles shall be provided, including pavement with sufficient space to park and maneuver as well as a curb cut to allow ingress/egress from the adjacent roadway.
 - iv. A sketch of the typical master meter vault layout, including some of the standard equipment requirements, is provided in Appendix B. The master meter vault must include an external bypass as well as redundant isolation valves both upstream and downstream of the meter. Master meter vaults shall be equipped with a steel bolt-on ladder and a Ladder Up Safety Post as manufactured by the Bilco Company or approved equal.
 - v. Electrical, instrumentation and control devices may be required.
7. Corrosion control in addition to polyethylene encasement may be required for ductile iron water main and appurtenances depending on, but not necessarily limited to, the following items: soil characteristics and/or proximity to petroleum pipelines. The designer shall contact DIPRA for evaluation and determination of the required corrosion control. A copy of DIPRA's evaluation and recommendation shall be provided to YCUA.
 8. Design of other water supply infrastructure, including but not necessarily limited to pressure reducing valves, storage facilities, and booster pump stations, will be evaluated and approved by YCUA individually. Design of these types of water supply infrastructure will likely require electrical, instrumentation and control devices, including adequate alarms and backup power.
 9. Tracer wire is required for all water system infrastructure. The design of the tracer wires and connection points must be reviewed and approved by YCUA.

Materials

1. Water Transmission and Distribution Mains
 - a. Water transmission and distribution main pipe shall be ductile iron manufactured in accordance with AWWA C151 (ANSI A21.51), latest revision thereof.
 - b. Ductile iron pipe shall be thickness class 350 for pipes up to 16" diameter and thickness class 56 for pipes 20" diameter and larger. Ductile iron pipe shall be standard cement double thickness lined in accordance with AWWA C104 (ANSI A21.4), latest revision thereof. Pipe exterior shall be seal coated with an approved asphalt seal coat.
 - c. If other materials are proposed for use, the applicant shall furnish the necessary design data for the proposed depth and operating conditions. Use of materials other than ductile iron will not be allowed unless approved by YCUA.

2. Fittings

- a. Fittings shall be ductile iron, 350 psi working pressure rating, meeting the requirements of AWWA C110 (ANSI A21.10), or AWWA C153 (ANSI A21.53) compact fittings, with cement mortar lining. Cement mortar lining shall meet AWWA C104 (ANSI A21.4) specification for a double thickness lining with an asphalt seal coat or fusion bonded epoxy meeting the requirements of AWWA C116, as approved by YCUA.

3. Joints

- a. Joints shall be push-on type meeting the requirements of AWWA C111 (ANSI A21.11). Mechanical or flanged joints will be allowed for special applications, subject to the approval of YCUA. Sealing gaskets, retainer glands and lubricants for joints shall meet the pipe manufacturer's specifications.
- b. The lubricant shall have no deleterious effect upon the color, taste or odor of potable water and shall not be corrosive to either the pipe or gasket.
- c. Where bell and spigot pipe and fittings may be necessary for connection to existing water mains, shop drawings of such pipe and fittings shall be submitted to YCUA by the applicant for approval.

4. Joint Restraint

- a. Ductile iron joints, where required, shall be restrained by an approved instant push-on restraining device or mechanical retaining gland.
- b. Push-on joints shall be restrained with approved instant joint-restraining devices such as Field Lok Gasket manufactured by U.S. Pipe Company or approved equal.
- c. Mechanical joint-restraining glands shall be the Megalug Series as manufactured by EBAA Iron or approved equal.
- d. Thrust blocks, where allowed, shall be made of 3,000 psi concrete and of adequate size and shape to resist all design working and surge pressures to which the main will be subjected.
- e. Harnessed joints and steel reinforced concrete anchorage may be required on pipes larger than 16" diameter.

5. Valves, Wells and Boxes

- a. Valves shall open counter-clockwise (left) in the Township and clockwise (right) within the City. All valves shall be equipped with an operating nut 2" square at the base tapering to 1 ¹⁵/₁₆" square at the top. The operating nut on clockwise-opening (right) valves shall be painted red.
- b. Gate valves shall be ductile iron body and bonnet, fully bronze mounted, reduced wall, resilient-seated valves with non-rising stems conforming to the applicable requirements of AWWA C500, C509, and C515, latest revisions. Valves shall have a minimum non-shock W.O.G. working pressure of 200 psi. The wedge shall be ductile iron with rubber-encapsulated seating surfaces. Stem shall be bronze of non-rising design with double O-ring packing.

- c. Butterfly valves shall conform to AWWA C504, latest revision, and GLWA Specification S-363, Butterfly Valves for Distribution System.
- d. Tapping Sleeves and Valves
 - i. Tapping sleeves, when specified, shall conform to AWWA C223, latest revision and shall be full length of heavy-duty stainless steel construction designed for use with the type of pipe to be tapped. Tapping sleeve body shall be 18-8 type 304 stainless steel. Flange shall be CF8 cast stainless steel. Bolts shall be 304 stainless steel. Gasket shall be full circumferential SBR compounded for water service. Tapping sleeve shall contain a test plug to assure seal prior to tapping.
 - ii. Tapping valves shall meet the specifications for gate valves except that the valve shall have a flange compatible with the tapping sleeve.
- e. Swing check valves shall have a cast or ductile iron body and bolted cap with a minimum non-shock W.O.G. working pressure of 150 psi. Seats shall be bronze and shall be screwed into the valve body. The disc shall be bronze or cast iron with permanently rolled in bronze faces. The disc hinge pin shall have ANSI 125 pound standard drill flat-faced flanges unless otherwise specified or shown on the Plans. Valves shall have outside weighted arm.
- f. Air release valves when specified shall be designed to operate under a maximum operating pressure of 300 psi and capable of venting 200 CFFAS (cubic feet of free air per second). Valves shall be cast iron with bronze internal parts and Type 304SS float.
- g. Valve Boxes
 - i. Boxes shall be three-piece screw-type, gray iron, with 5¼" shaft, such as East Jordan Iron Works #8560 or approved equal. All valve boxes shall have a ½" diameter hole field drilled 3" below the top to accommodate tracer wire.
 - ii. Valve box lids shall be gray iron, non-locking, drop-in type, with the word "Water" in raised letters, such as East Jordan Iron Works #6800 or approved equal. Valve box lids shall be non-locking type unless otherwise directed by YCUA.
 - iii. Valve boxes installed over gate valves shall be equipped with a steel gate valve adaptor as manufactured by Adaptor, Inc., or approved equal. Valve boxes installed over butterfly valves shall be equipped with a steel butterfly valve adaptor as manufactured by Adaptor, Inc., or approved equal. Valve box bases shall not rest directly upon the valve assembly.
- h. Valve Wells
 - i. Valve wells and covers shall be provided in accordance with the requirements of item III.Materials.3, Wastewater System, Materials, Manholes and Vaults. Valve wells constructed over an existing water main shall have a doghouse mudded to an 8" thick cookie.
 - ii. Covers shall have the words "Water Supply" in raised letters spaced in from the periphery of the cover.

- iii. Valves in wells shall be at least 6" above the floor of the well, supported with either precast or formed concrete.
- iv. Connections of water mains 6" through 24" diameter to valve wells shall be through:
 - (a) A flexible rubber boot which shall be securely clamped into a core-drilled pipe port. Pipe ports shall be core-drilled at the point of valve well manufacture and shall be accurately located within 1/2" of proposed water main centerline (Kor-N-Seal or approved equal).
 - (b) A self-adjusting mechanical pipe to manhole seal which provides a resilient flexible and infiltration-proof joint (Res-seal or approved equal).
 - (c) A flexible rubber wedge firmly rammed into a rubber gasket which is cast into the valve well (Press Wedge II or approved equal).
 - (d) Neoprene rubber for the manhole boot shall meet ASTM Specification C443 and shall have a minimum thickness of 3/8". Pipe clamp bands shall be of corrosion-resistant steel.
 - (e) Connection of water main larger than 24" diameter to valve wells shall be as approved by YCUA.
 - (f) Valve wells shall be water tight. Infiltration wrap shall be used to seal the joints and adjustments. The standards for sanitary manholes, joints, and adjustments applies to water wells.

6. Fire Hydrants

- a. Fire hydrants shall be East Jordan Iron Works Model 5-BR250 or Mueller A-425 Super Centurion, conforming to AWWA C502, breakable flange type, opening counter-clockwise, with 5 1/4" valve seat opening and 6" diameter inlet. All hydrants shall be 6' bury.
- b. Fire hydrants shall be fully bronze mounted, including top of the operating stem where it passes through the double o-ring seal in the bronze packing gland. The forged operating stem in the base and the valve seat shall also be of bronze. The molded valve shall be of composition rubber and the cast iron valve clamps shall be packed with o-ring seals and held tight to the stem by a threaded bronze hex retainer ring and threaded bronze locknut, anchored with set screws.
- c. Hydrants shall have nut type caps with chains. Top operating nut shall be 1 1/2" pentagonal.
- d. Hydrants shall have one 3 1/2" (4.05" O.D.) pumper connections with National Standard 7 1/2 threads per inch. All hydrants shall have City of Ann Arbor specification thread pattern.
- e. All hydrants shall have one 4" Storz adapter. The adapters shall be constructed of a A-356 High Strength Aluminum Alloy, painted orange. The Storz sealing surface shall have a machined metal seat. The threads and metal seat areas shall be Teflon coated. The adapters shall be equipped with a set of Type 302 stainless steel butterfly vanes designed to automatically open, by use of stainless steel torsion spring, with water flow and automatically close when flow is stopped. The adapter shall be installed on the left side of the hydrant when facing the hydrant.

- f. All hydrants shall be constructed with a companion gate valve in a valve box, located 3' from the center of the hydrant.

7. Water Services

- a. Water services $\frac{3}{4}$ " to 2" in diameter shall be Type K copper. Pipe material for water services larger than 2" in diameter shall be in accordance with the Materials portion of this Section (II-11). Water service pipe material shall be homogeneous between the YCUA distribution main and the outlet coupling downstream of the meter.
- b. Couplings for water services $\frac{3}{4}$ " to 2" diameter shall have a three-part union, and both inlet and outlet connections shall be able to receive the flared end of the copper water service pipe. Joints for water service pipe material larger than 2" diameter shall be in accordance with the Materials portion of this Section (II-11).
- c. Water service locations shall be marked at the right-of-way or easement line with a Utility Warning Marker as manufactured by Carsonite International, or approved equal.

8. Corporation Stops

- a. Corporation stops shall have bronze cast bodies and shall conform to the requirements specified in AWWA C800, latest revision. The outlet connection shall be able to receive the flared end of the copper water service pipe. Corporation stops connected to ductile iron, cast iron, steel or PVC water distribution mains for water services $\frac{3}{4}$ " to 2" diameter shall be Mueller Catalog No. B-25000N – Ball valves.
- b. Corporation stops adjacent to valves and other appurtenances shall be 1" diameter.
- c. Service saddles, for corporation stops not threaded directly to the water distribution main, shall be bronze with double stainless steel straps and shall conform to the requirements specified in AWWA C800, latest revision. Service saddles for water services $\frac{3}{4}$ " to 2" diameter shall be Mueller BR2S Series or approved equal.

9. Curb Stops and Boxes

- a. Curb stops shall be fully bronze and both inlet and outlet connections shall be able to receive the flared end of the copper water service pipe. Curb stops for water services $\frac{3}{4}$ " to 2" diameter shall be Ford B22-####NL Series or approved equal.
- b. Curb boxes shall be extension type with arch pattern base with 1" upper section such as Series 5601 for $\frac{3}{4}$ " and 1" diameter curb stops and Series 5603 for 1 1/4" to 2" diameter curb stops as manufactured by A.Y. MacDonald Mfg. Co. or approved equal. Curb box lids shall be cast iron with a one-piece two-hole Erie pattern lid such as 5601L as manufactured by A.Y. MacDonald Mfg. Co. or approved equal. Curb boxes located in paved surfaces shall be equipped with a cast iron curb box sleeve such as Mueller H-10342 or approved equal.

- c. Curb stops and boxes shall be provided with a stainless steel stationary shut-off rod attached to the curb stop with a stainless steel pin. The top of the rod shall be located within 3' of the surface.

10. Meters

- a. Except for master meters, meters will be furnished and installed by YCUA.
- b. Master meters 12" and smaller shall be Class 2 Turbine Meters manufactured by Sensus or approved equal. Compound meters are acceptable, subject to review and approval by YCUA. Meters larger than 12" diameter will be considered on an individual basis. Registers on master meters shall be Intelligent Communications Encoder as manufactured by Sensus or approved equal and shall indicate consumption in cubic feet.
- c. Master meter vaults shall be precast reinforced concrete in accordance with the requirements for manholes and vaults outlined in Chapter V, Wastewater System.
- d. Master meter vaults shall be equipped with steel bolt-on ladders and ladder up safety post as manufactured by Bilco Company or approved equal.

11. Backflow Prevention Devices

- a. Double check valve assemblies shall conform to the requirements specified in AWWA C510, latest revision.
- b. Reduced pressure zone assemblies shall conform to the requirements specified in AWWA C511, latest revision.
- c. Pressure vacuum breakers shall conform to the requirements specified in ANSI 1020, latest revision.

12. Corrosion Control

- a. Polyethylene encasement shall be installed on all ductile iron water main, fittings and appurtenances. Polyethylene encasement shall meet the requirements specified in AWWA C105 (ANSI 21.5), latest revision. Polyethylene encasement shall be a minimum of 8 mil thick Class aC (white) polyethylene. The encasement shall overlap the joint by approximately 12" on either side and be secured to the pipe with polyethylene adhesive tape. All pipe, fittings and appurtenances shall have enhanced polyethylene encasement that addresses, specifically, the potential influence of anaerobic bacteria and inhibits the formation of corrosion cells under the wrap.
- b. Additional corrosion control materials, if necessary, shall be in accordance with the recommendation of DIPRA.

13. Miscellaneous Materials

- a. All nuts and bolts located below grade shall be Core Blu (Trumbull) or R-Blue (Romac bolts) type steel.
- b. Tracer Wire
 - i. Wire to be used for tracer purposes shall be 12 gauge or greater, steel core, copper clad, Copperhead EHS, or Engineer approved equal.
 - ii. Connection shall be made using snake bite mainline or locking connector, or Engineer approved equal.
- c. Post Indicators and Valves
 - i. Post indicators, when specified, shall be American Flow Controls series A240 or Clow series 2954A with aluminum plates indicating OPEN or SHUT. Post indicator shall open left.
 - ii. Post indicator valves shall be American Flow Control Model 2500 or Clow model F-6120. All valves shall open left.
 - iii. Post indicators and their corresponding valves must be made by the same manufacturer.
- d. Bollards shall be 4" diameter galvanized schedule 40 steel posts 36" to 48" tall with a minimum depth of bury of 24". The posts shall be set in and filled with 3000 psi concrete. Bollards shall be painted OSHA "Safety Yellow."
- e. Casing Pipe Construction
 - i. Spacers for placement in the annular space between the carrier pipe and a casing pipe shall be Ranger II as manufactured by PSI or approved equal.
 - ii. End seals shall be Model C rubber seal with stainless steel bands as manufactured by PSI or approved equal.
- f. Materials for other water supply system infrastructure, including but not necessarily limited to pressure reducing valves, storage facilities, and booster pumps stations, will be evaluated individually.

Construction Methods

1. General

a. Excavation

Excavation, bedding, and backfill operations shall be accomplished in accordance with requirements outlined in Chapter VI, Grading and Earthwork, except as modified herein.

b. Water Use

Subject to the approval of YCUA, the proprietor can use the existing water supply system to obtain water needed to complete the water supply system improvements. The proprietor shall provide suitable backflow prevention for any temporary connections to the existing water supply system. As directed by YCUA, any water used from the system may be required to be metered and paid for at the current YCUA water usage rate in effect at the time of the construction of project.

c. Valve Operation

Unless directed otherwise by YCUA, operation of valves on the existing water supply system will be the responsibility of the contractor performing the work. All valve operation performed by a contractor shall be observed by YCUA and/or its designated representative. Advance notice to YCUA and/or its designated representative as well as any YCUA customers whose water supply will be interrupted by the valve operation is required. Such advanced notice shall be the responsibility of the contractor and two business days will be required prior to a scheduled contractor valve operation. Service interruptions shall only be scheduled to occur Monday through Thursday.

2. Submittals

a. Certifications

All pipe, fittings, and appurtenances delivered to the job shall be accompanied by certification papers showing that the materials have been manufactured and tested in accordance with all applicable standards.

b. Shop Drawings

Shop drawings may be required for certain materials including, but not necessarily limited to, corrosion control measures, pressure reducing valves, storage facilities, and booster pump stations, prior to fabrication and manufacture.

3. Delivery, Handling, and Storage

- a. Water supply system materials shall be delivered, handled, and stored in accordance with all applicable AWWA requirements, manufacturer's recommendations, and as specified by YCUA.

- b. Upon delivery to the project site all materials will be inspected by YCUA or its designated representative. Rejected materials shall be immediately removed from the project site by the proprietor.

4. Sequencing

In general, water supply system improvements shall be constructed in accordance with the following sequence:

- a. Install new water main and appurtenances.
- b. Poly pigging.
- c. Preliminary hydrostatic testing (recommended, performed at the proprietor's discretion).
- d. Disinfection.
- e. Flushing.
- f. Bacteriological testing.
- g. Hydrostatic testing.
- h. Connect to existing water supply system.
- i. Full flush at 2 feet/second or greater.
- j. Connect water services to new water main; abandon/remove old water main and/or appurtenances (if necessary).
- k. Abandon and/or remove out-of-service water main and appurtenances, if necessary.

5. Installation

- a. Water Transmission and Distribution Mains and Fittings
 - i. Ductile iron pipe and fittings shall be installed in accordance with the requirements of AWWA C600, latest revision, and as modified herein. Installation via open-cut excavation shall be accomplished in accordance with standard laying conditions.
 - (a) Ductile iron pipes shall be fully enclosed in polyethylene encasement and laid on a compacted sand cushion, 4" thick. Sand shall conform to fine aggregate MDOT Class II.
 - (b) Class II sand bedding material shall be placed around and above the pipe to a height of 12" above the pipe.
 - (c) Sand shall be compacted to 12" above the pipe to not less than 95 percent of the maximum unit density as determined at optimum moisture content.
 - ii. Other pipe materials and fittings approved for use by YCUA shall be installed in accordance with all applicable standards, manufacturer's recommendations, and as directed by YCUA.
 - iii. Water distribution and transmission mains shall be installed via open-cut excavation wherever possible. Other acceptable means of installation are

trenchless technologies such as horizontal directional drilling and pipe-bursting. Installations using other methods including, but not necessarily limited to, casing pipe construction and river crossings shall be completed as directed and/or approved by YCUA.

- iv. Tracer wire shall be placed along the top of the water main and taped in place with duct tape or electrical tape at maximum 6' intervals. All tracer wire shall be successfully tested for continuity. For ductile iron pipe, the tracer wire shall be placed outside the polyethylene encasement.
 - (1) Tracer wire shall be extended up the outside of each valve box, curb stop, hydrant, or other appurtenance of the main line through the use of a main line to service a three-way connector. The main line tracer wire shall remain along the pipe and not be cut or disturbed.
 - (2) Tracer wire on dead end water mains and at connections to existing mains that do not have tracer wire shall be terminated at a ground rod and use a main line service connector to bring up the branch side of the three-way outside the companion valve of the dead end hydrant and terminate by entering the valve box immediately downstream of the fire hydrant at the terminus of the water main.
- b. Joints and Joint Restraint
 - i. All joint materials shall be assembled in accordance with standard practice, the manufacturer's recommendations and as directed by YCUA.
 - ii. Restraints shall be applied to all joints that deflect pipe $11\frac{1}{4}^\circ$ or greater, including tees, hydrant shoes, reducers, plugs and caps. For push-on joints, approved restraints are required at the joint and in each direction at an adequate distance to resist the axial thrust of the test pressure. Where mechanical joints are approved by YCUA, proper restraints shall also be installed in each direction at an adequate distance in combination with approved mechanical restraints at the joint in conformance with the DIPRA schedule or the manufacturers recommended restraint distances.
 - iii. No concrete thrust blocks shall be installed in combination with approved restraints unless approved by YCUA. Thrust blocks, where allowed, shall be formed of 3,000 psi concrete and shall be installed against undisturbed earth.
- c. Valves, Wells and Boxes
 - i. Prior to installation, valves shall be inspected for direction of opening, number of turns to open, freedom of operation, tightness of pressure containing bolting and test plugs, cleanliness of valve ports and seating surfaces. All bolts and nuts, except for adjusting bolts or screws in butterfly valves, shall be checked for proper tightness. Seat adjusting bolts in butterfly valves shall be adjusted only as recommended by the manufacturer.
 - ii. Water main shall be placed level through all valve wells unless specified otherwise by YCUA.
 - iii. All flexible pipe to valve well connections shall be installed per manufacturers' specifications.
- d. Fire Hydrants

- i. Fire hydrants shall be installed in accordance with AWWA Manual M17. Each hydrant will be set plumb and braced firmly in this position. Connection of the hydrant to the branch will be made by means of mechanical joints, as herein specified under jointing. All joints between the hydrant and the main will be restrained by the same means as used for water main as specified in Item II.Construction Methods.5.b.
 - ii. If hydrants are furnished with drain outlets, the outlets must be permanently capped or plugged.
 - iii. After the hydrant has been set, an additional 1' depth of gravel shall be spread and tamped around the hydrant. When this has been done, the remaining backfill will be placed and compacted, taking care at all times to avoid jarring the hydrant.
 - iv. After hydrants have been installed and tested, the portion above ground shall be painted with 2 coats of Rustoleum OSHA "Safety Yellow."
- e. Cleaning and Testing

i. Cleaning

Prior to disinfection and hydrostatic testing, newly constructed water mains less than 24" in diameter shall be thoroughly flushed to remove all accumulated debris that may have entered the line during construction. Flushing shall include the use of a "polly pig" or approved equal, to remove accumulated deposits. The frequency of running the "polly pig" through the water mains shall be determined by the debris discharging from the effluent. Several passes with the "polly pig" through the newly constructed system may be required before the main is acceptable. Procedures for use of the "polly pig", or approved equal equipment, may be per the manufacturer's specifications. Mains 24" in diameter and larger shall be manually cleaned and inspected during installation.

ii. Testing

(a) Bacteriological

After flushing, the water mains shall be disinfected in accordance with AWWA C651, latest revision.

The proprietor shall furnish chlorine and all necessary labor and equipment for its application. The proprietor shall make suitable arrangements with YCUA for bacteriological analysis. The proprietor shall dispose of high residual chlorine water by a method approved by YCUA.

Water mains 24" in diameter and larger shall be chlorinated in sections between main line valves. Chlorine solution shall be renewed and transferred to the next adjacent section of pipe minimizing the volume of water needed to sterilize the main.

(b) Hydrostatic

Within a reasonable length of time following installation and backfilling, the proprietor shall complete all work necessary to perform hydrostatic testing.

The hydrostatic testing shall be conducted in accordance with AWWA C600, latest revision.

The proprietor shall perform all necessary preliminary hydrostatic tests and shall make all necessary repairs, including the repair of all visible leaks and cracks, and re-tests with his own forces to ready the water mains for final hydrostatic inspection and testing. Immediately after the water mains have passed such preliminary tests, the proprietor shall perform a final hydrostatic inspection and test.

The hydrostatic test shall be conducted before the new water main is connected to the existing water system, except as specified below. The proprietor shall furnish all necessary personnel, temporary blow-offs, plugs, bracing, test pumps and all other necessary apparatus for conducting the test. Testing shall be conducted under the observation of the YCUA or its designated representative.

At the option of YCUA, testing may be performed against closed, locked valves, providing that the new main has passed bacteria tests, to be tested and the testing apparatus shall have first been flushed and chlorinated in accordance with accepted procedure. After chlorination and subsequent flushing, a sample of water must show safe bacteriological results through a test by a recognized laboratory. In the event of an unsatisfactory hydrostatic test, the proprietor will cut the new main, install caps or plugs, pressure test and re-chlorinate.

Each hydrant assembly shall be tested. The test shall consist of flushing the hydrant for a minimum of 10 minutes. During the test period, the flanges of the hydrant will be hydrostatically tested at the system's pressure and the 6" gate valve shall be closed and opened. The proprietor shall provide all necessary equipment and labor for making the tests, including hoses for disposal of water. A testing schedule and method of disposing of flushing water shall be submitted to YCUA for approval. The testing schedule shall be coordinated with YCUA or its designated representative.

- f. Water Services
 - i. Water services $\frac{3}{4}$ " to 2" diameter shall be installed in accordance with manufacturers' recommendations. Water services larger than 2" diameter shall be installed in accordance with the requirements for water distribution mains.
 - ii. Water services from one side of a public roadway to the opposite side shall be installed in accordance with the requirements of the agency having jurisdiction over the right-of-way and as approved by YCUA.
- g. Corporation stops and saddle sleeves, where required, shall be installed in accordance with manufacturers' recommendations and as directed by YCUA. Corporation stops will be tested for proper operation by YCUA or its designated representative prior to backfilling.

- h. Curb stops and boxes shall be installed in accordance with manufacturers' recommendations and as directed by YCUA. Curb stops will be checked for accessibility and proper operation by YCUA or its designated representative prior to installation of a meter. Unless otherwise authorized, only YCUA staff shall operate curb stops.
- i. Meters
 - i. Unless otherwise authorized by YCUA, domestic and fire suppression meters up to 1½" diameter will be installed by YCUA personnel.
 - ii. Meters larger than 1½" diameter shall be installed by the proprietor and inspected and approved by YCUA or its designated representative. Master meters will not be provided by YCUA. Master meters shall be tested and calibrated in accordance with applicable AWWA standards and manufacturers' recommendations.
- j. Backflow prevention devices shall be installed in accordance with applicable AWWA standards and manufacturers' recommendations. Backflow prevention devices shall be tested by a state certified tester and a written copy of the certification generated during the test shall be submitted to YCUA.
- k. Corrosion Control
 - i. Polyethylene encasement shall be installed as specified in AWWA C105 (ANSI 21.5), latest revision. V-Bio Additive is a new standard recommended by DIPRA.
 - ii. Additional corrosion control measures, if necessary, shall be installed in accordance with the recommendation of DIPRA and/or the manufacturer.
- l. Other water supply system infrastructure including, but not necessarily limited to, pressure reducing valves, storage facilities, and booster pumps stations, shall be installed in accordance with all applicable AWWA standards, manufacturers' recommendations, and as directed by YCUA.

V. WASTEWATER SYSTEM

General

1. Wastewater system improvements shall be designed and constructed in accordance with the requirements of Part 41 of Act 451 of the Public Acts of 1994, as amended, the most recent revision of the Recommended Standards for Sewage Works by the Great Lakes-Upper Mississippi River Board of State Sanitary Engineers (commonly known as the "Ten States Standards") and as prescribed herein.
2. All wastewater system improvements will require the review and approval of the Ypsilanti Community Utilities Authority (YCUA). Proposed public wastewater system improvements will require the review and approval of YCUA and the Michigan Department of Environment, Great Lakes, and Energy (EGLE). Wastewater facilities are typically considered public facilities when two or more service connections are made to the same sanitary sewer. In most instances, including multiple unit developments, the sanitary sewer may have to be public even though the project has one owner. YCUA approval will be required for private sanitary sewers serving more than one residence or building. The extension of sanitary sewers will generally be required across the entire frontage of the site.
3. Wastewater system improvements specified in the latest revision of the YCUA Sanitary Sewer Master Plan may be required as part of the project. The applicant shall contact YCUA to determine if any improvements identified in the latest revision of the YCUA Sanitary Sewer Master Plan will need to be incorporated as part of the project.
4. Plan and profile views shall be provided for all proposed wastewater system improvements including force mains. The plan and profile shall be presented on the same plan sheet and shall be vertically oriented.
 - a. Wastewater design calculations, the wastewater district map and a wastewater system quantity list shall be provided on the cover sheet of the detailed engineering plans. The design calculations and wastewater district map shall include both current and future service areas and populations. The wastewater system quantity list shall be delineated by existing or proposed road right-of-way or easement.
 - b. The following information must be shown in the plan view of proposed wastewater system improvements:
 - i. Size, material and type of pipe.
 - ii. Length between structures (and/or appurtenances for pressure sanitary sewers).
 - iii. Slope of pipe between structures (and/or appurtenances for pressure sanitary sewers).
 - iv. Where required, a dedicated sanitary sewer easement must be shown on the plans. The sanitary sewer easement width shall be either twice the depth of

- the pipe plus the diameter of the pipe plus 2' (rounded up to the nearest whole foot), or 25', whichever is greater.
- v. Top of casting and all pipe invert elevations with direction identified at each structure (and/or appurtenances for pressure sanitary sewers).
 - vi. Progressive numbering system for structures and appurtenances.
- c. The following information must be shown in the profile view of proposed wastewater system improvements:
- i. Existing and proposed ground elevations.
 - ii. Length, type, class, size and slope of pipe between structures (and/or appurtenances for pressure sanitary sewers).
 - iii. Top of casting and all pipe inverts with direction identified at all structures;
 - iv. All utility crossings.
 - v. Special backfill areas, i.e. sand.
 - vi. Provisions for infiltration testing.
 - vii. Progressive numbering system on structures.
 - viii. Adjacent existing or proposed utilities plotted where parallel.
- d. Plans showing any proposed wastewater system improvements, public and/or private, shall be accompanied by the YCUA standard wastewater detail sheets. The standard details are included in the Digital Appendix.
5. Connection of individual residences or buildings to the wastewater collection system will require the submittal of a utility service plan for review and approval by YCUA. Utility services plans can be submitted on 8½" x 11" white paper with blue or black lines. The following information must be shown on the utility service plan:
- a. The applicant's name, address, telephone number, and electronic mail address (if available).
 - b. The name, address, telephone and fax numbers, and electronic mail address for the applicant's engineer/surveyor.
 - c. The utility service plan shall be prepared to a scale of 1" = 40'. The following items must be shown on the utility service plan:
 - i. A legal description of the parcel, including tax identification number, along with a sketch showing all property lines including the bearing and distance.
 - ii. All sides of the proposed or existing building.
 - iii. Existing and/or proposed driveways and sidewalks, including materials and thicknesses.
 - iv. Existing and/or proposed utilities on the parcel or in the adjacent public right-of-way or easement. Utilities to be shown include, but may not necessarily be

limited to: water supply, wastewater, storm sewer, gas, telephone, electric, and cable television.

- v. Existing and/or proposed building sewers, water services, and storm sewer laterals (for sump pump discharges, if applicable). Information shall include proposed material and size. Dimension all pipes and any cleanouts from the building corners.
6. Trunk line and transmission charges, benefit charges, as well as tap fees and meter fees associated may apply to water supply system improvements and/or connections to the existing water supply system. The schedules for these fees can be found on the YCUA website.
 7. Projects involving non-residential discharges to the YCUA wastewater collection system may be required to be designed, constructed and operated in accordance with the Industrial Pretreatment Program as identified in the YCUA Sewer Use Ordinances, latest revision.

Design Criteria

1. Capacity Design

- a. For design purposes, population in the tributary area shall be based on a minimum of 3½ persons per single family residence, also referred to as an equivalent residential unit (ERU). The basis of design calculations shall include a tabulation of the proposed usage types and the conversion of the various uses into ERUs. The adopted unit factors as included in the YCUA Trunkline and Transmission Line Service Charge ordinance shall be used to convert different usage types to ERUs.
- b. Wastewater collection systems shall be designed on the basis of an average daily flow of 100 gallons per capita per day. The required capacity shall be determined by the peak design flow using the peaking factor as prescribed by the Ten States Standards.
- c. All gravity sanitary sewers shall be designed to provide average velocities, when flowing full, of not less than 2 feet per second, based on Manning's formula using an "n" value of 0.013. The maximum design velocity for gravity sanitary sewers shall be 10 feet per second with the pipe flowing full.
- d. The minimum size for gravity sanitary sewers shall be as follows:
 - i. For proposed systems discharging to existing gravity sanitary sewers 10" diameter or larger, the minimum size pipe shall be 10" diameter, with the terminal section of 10" diameter gravity sanitary sewer at a uniform slope of not less than 1.0% between structures. The minimum slope for all other sections of 10" diameter gravity sanitary sewer shall be 0.3% between structures.
 - ii. For proposed systems discharging to existing 8" diameter gravity sanitary sewers, the proposed pipe shall be 8" diameter, with the terminal section of 8"

diameter gravity sanitary sewer installed at a uniform grade of not less than 1.0% between structures. The minimum slope for all other sections of 8" diameter gravity sanitary sewer shall be 0.4% between structures.

- iii. No proposed discharges, including connection of building sewers, to existing sanitary sewers smaller than 8" diameter will be allowed.
 - iv. Gravity sanitary sewer pipes smaller than 8" diameter are considered building sewers and no more than one service connection will be allowed through pipes smaller than 8" diameter.
- e. Non-residential discharges to the YCUA wastewater system may need to incorporate such measures including, but not necessarily limited to, grease separators and/or oil separators. The need for such measures and design thereof shall be subject to the review and approval of YCUA.

2. Sanitary Sewer Location

- a. Sanitary sewers shall be located to provide unrestricted access for inspection and maintenance operations. Wherever possible, sanitary sewers and appurtenances shall be located outside the influence of existing or proposed pavement. Within existing or proposed public road rights-of-way, sanitary sewer alignments and appurtenance locations should be in accordance with the requirements of the agency having jurisdiction. Alignments and locations within private road easements should be in accordance with the requirements of the agency having jurisdiction over the adjacent public road right-of-way. Sanitary sewer alignments and appurtenance locations in easements outside of public road rights-of-way will be evaluated individually.
- b. A minimum horizontal separation of 10' shall be provided between sanitary sewers and water mains. Adequate horizontal separation shall be provided between sanitary sewers and all other underground utilities to allow a 1:1 trench slope from the bottom of the deeper utility such that the shallower utility will not be undermined. If it is impossible to obtain proper horizontal and vertical separation as described above, both the water main and sanitary sewer must be constructed of push-on or mechanical joint pipe complying with the requirements outlined in Chapter II, Water Supply System. A variance will be required from both YCUA and EGLE for any proposed sanitary sewer improvements that will not satisfy the minimum horizontal separation requirements.
- c. Where sanitary sewer alignments cross alignments of other utilities, the angle between horizontal alignments at the crossing shall not be less than 45°.

3. Depth of Sewers

- a. The minimum depth of cover over the top of gravity sanitary sewer pipe shall be 4' as measured from the proposed ground elevation.
- b. Gravity sanitary sewers shall be a minimum of 10' deep when fronting residential parcels to be directly connected to the sewer. Deep setbacks or unusual topographic conditions may require more depth.

- c. A minimum vertical separation of 18" shall be provided between sanitary sewers and water mains. In addition, a minimum vertical separation of 12" shall be provided between sanitary sewers and other underground utilities unless otherwise approved by YCUA and/or the agency having jurisdiction over the other utility.
- d. The maximum depth to invert of any sanitary sewer shall not exceed the depth recommended by the pipe manufacturer for each size and class of pipe. The applicant's design engineer shall provide the manufacturer's installation instructions/recommendations with the plan submittal for review by YCUA.

4. Manholes

- a. Manholes shall be installed at intervals not to exceed 300', or at the following locations:
 - i. The upstream terminus of a gravity sanitary sewer run, including transition between a gravity building sewer and a low-pressure sanitary sewer pipe. Wherever possible, dead-end gravity sanitary sewer alignments shall be avoided. Gravity sanitary sewer alignments shall be extended to common terminus locations and high-point manholes shall be installed at the common terminus locations.
 - ii. All changes in pipe grade.
 - iii. All changes in pipe size.
 - iv. All changes in horizontal alignment.
 - v. All gravity sanitary sewer junctions.
 - vi. Monitoring locations as identified in the YCUA Sewer Use Ordinance, latest revision.
- b. Manholes shall be located such that the casting will not be in street or parking lot pavements, sidewalks or driveways.
- c. Manholes for sanitary sewers 21" diameter and smaller shall have a minimum inside diameter of 48". Manholes for sanitary sewers larger than 21" diameter shall have a minimum inside diameter of 60". Larger diameter manholes may be required depending on such factors as the number of sanitary sewers at a junction or significant changes in horizontal alignment. Manholes for transitions between gravity building sewers and low-pressure sanitary sewer pipe shall have a minimum inside diameter of 24".
- d. Internal drop connections will be required where the invert of the outlet gravity sanitary sewer is 18" or more below the inlet pipe invert.
- e. The 0.8 depth flow line of gravity sanitary sewers shall be matched at structures when changing sizes of gravity sanitary sewers.

- f. An allowance of 0.1' in grade shall be made for loss of head through a manhole where gravity sanitary sewer horizontal alignment is deflected 30° or more.

5. Building Sewers

a. General

- i. Except as permitted by the YCUA Sewer Use Ordinances, each individual residence or building connected to the YCUA wastewater collection system shall have an independent building sewer.
 - ii. For each parcel along the route of a proposed gravity sanitary sewer, a building sewer shall be constructed from the gravity sanitary sewer to the public right-of-way or easement line. In particular, this applies to any parcels in the sanitary sewer service design area that are zoned for no more than one single-family residence or parcels that have an existing residence or building when the gravity sanitary sewer is installed. Installation of building sewers may not be required to larger vacant parcels that may be developed in the future.
- b. Building sewers shall be aligned such that the building sewer pipe is perpendicular to the centerline of the public road right-of-way or easement.
 - c. Building sewers may be connected directly to an existing manhole when the manhole is located in the right-of-way or easement between the extension of the side property lines of the parcel. Internal drop connections, as specified elsewhere, may be required.
 - d. The minimum grade for building sewers shall be 1% for 6" diameter pipe and 2% for 4" diameter pipe.
 - e. Connections other than sanitary building sewers will not be permitted. Downspouts, weep tile, footing drains, sump pump discharges or any other conduit that collects storm or ground water shall not be discharged into the building sewer.
 - f. Private building sewers of excessive length, although not a public sewer, may require inspection and testing. Each site will be considered individually by YCUA.
 - g. Cleanouts shall be provided within 5' of foundation walls, at all bends and at intervals not greater than 90', and at the location where the building sewer enters the public road right-of-way or the sanitary sewer easement.
 - h. Threaded cap cleanouts shall be installed in a minimum of 8" tall monument box with a minimum 8" internal diameter and sewer marked on the lid (EJ 1566 or an Engineer approved equal). Clean out monument boxes shall be set on a minimum of 6" compacted, well-graded stone.
 - i. The minimum allowable horizontal separations between building sewers and other facilities are as follows:
 - i. Water services – 3'.

- ii. All other utilities and structures – 10’.

6. Inverted Siphons

- a. In general, sanitary sewer siphons will only be accepted where no other feasible alternative exists and where there will be sufficient flow in the sewer so that maintenance will be held to a minimum.
- b. The minimum pipe size for inverted siphons shall be 6” diameter.
- c. A minimum of two pipes shall be provided for each inverted siphon. Inverted siphons shall be designed to have a minimum velocity of three feet per second. Design calculations including plan and profile drawings shall be submitted for review and approval by YCUA.

7. Pump/Lift Stations

- a. Pump stations and pressure sanitary sewers will only be allowed when no practical gravity sanitary sewer alternative exists.
- b. A minimum of two pumps shall be provided. Pump stations shall be designed to pump the anticipated peak hour flow with the largest pump out of service.
- c. Pump stations shall be protected from physical damage during a 100-year flood and remain operable and accessible during a 25-year flood.
- d. Pump station structures and equipment shall be protected from vehicular traffic. Provisions for maintenance vehicles shall be provided, including pavement with sufficient space to park and maneuver as well as a curb cut to allow ingress/egress from the adjacent roadway.
- e. Sketches of the typical pump station layout and sections, including some of the standard equipment requirements, are provided in the Digital Appendix. Pump stations must include valves and risers to accommodate bypass of the station under various conditions and drainage from the valve vault to the wet well.
- f. Electrical, instrumentation and control devices, including adequate alarms and backup power, will be required.
- g. Wastewater pumps shall meet the following requirements:
 - i. Pumps must be capable of passing 3” or larger spheres.
 - ii. Pump suction and discharge opening must be at least 4” diameter.
 - iii. Pumps shall operate under a positive suction head.
 - iv. Pump “off” level shall be above the pump impeller.
 - v. Pumps must be equipped with individual intakes.
 - vi. Pump motors shall be three-phase electric.
 - vii. Shut off valves shall be provided on the discharge line of each pump.

viii. Check valves shall be provided between the pump discharge and the shut off valve on the discharge line.

8. Pressure Sanitary Sewers

- a. Pressure sanitary sewer pipe shall have a minimum diameter of 4". Low pressure sanitary sewer pipe may require a smaller pipe to prevent solids and H₂S build-up and damage to the system.
- b. Pressure sanitary sewers shall be designed to maintain a minimum velocity of 2 feet per second.
- c. Valves and appurtenances shall be provided in the following locations:
 - i. Isolation valves shall be provided per the spacing requirements as specified in the Water Supply System chapter of these standards.
 - ii. Air/vacuum relief valves shall be provided at all high points.
 - iii. Clean outs shall be provided at all low points.
- d. Pressure sanitary sewers shall be designed to discharge to gravity sanitary sewers at manholes. The pressure sanitary sewer shall enter the receiving manhole at a point no less than 6" above the invert of the outlet gravity sanitary sewer invert and no more than 2' above the flow line in the gravity sanitary sewer.
- e. Pressure sanitary sewer pipe shall be designed to withstand both internal pressures and external trench as well as live loads. Design computations shall be submitted by the applicant's design engineer for review and approval by YCUA.
- f. Low pressure sanitary sewer systems which utilize individual grinder pump stations at each separate user will not be accepted as part of the YCUA wastewater collection system. Such systems, if deemed appropriate by YCUA, will be private with operation and maintenance of both the grinder pump station and low-pressure sanitary sewer pipe remaining the responsibility of the applicant or property owner.

9. On-site sewage disposal will be allowed in locations where public gravity sanitary sewer is not available. A copy of a valid on-site sewage disposal system permit from the Washtenaw County Environmental Health Division must be submitted prior to plan approval.

Materials

1. Sanitary Sewer Pipe

- a. Gravity sanitary sewer pipe shall be one of the following:
 - i. For pipes 4" diameter to 15" diameter, solid wall polyvinyl chloride (PVC) conforming to the requirements of ASTM D3034, latest revision. Solid wall PVC pipe shall have a sidewall dimension ratio (SDR) no greater than 26.
 - ii. Extra strength clay pipe conforming to the requirements of ASTM C700, latest revision.
 - iii. Reinforced concrete pipe and inverted siphons conforming to the requirements of ASTM C76, latest revision.
- b. Pressure sanitary sewer pipe shall be one of the following:
 - i. Ductile iron conforming to the material requirements prescribed in item II.Materials.1., Water Supply System, Materials, Water Transmission and Distribution Mains.
 - ii. Solid wall PVC conforming to the requirements of ASTM D3034, latest revision, with an SDR no greater than 21.
- c. If other materials are proposed for use, the applicant shall furnish the necessary design data for the proposed depth and operating conditions. Use of materials other than those specified herein will not be allowed unless approved by YCUA.

2. Pipe Joints

- a. Pipe joints for gravity sanitary sewer shall conform to the following requirements depending on the type of pipe used:
 - i. Joints for solid wall PVC pipe shall be push-on type unless solvent weld joints are approved by YCUA. Push-on type joints shall conform to ASTM D3212, latest revision. Solvent weld joints, where approved by YCUA, shall conform to ASTM D2855, latest revision.
 - ii. Bell and spigot joints on extra strength clay pipe shall be in accordance with requirements of ASTM C425.
 - iii. Modified grooved tongue joints for reinforced concrete pipe shall have a rubber gasket snapped into a groove cast in to the tongue. Rubber gasket joints for reinforced concrete pipe shall be in accordance with ASTM C443, latest revision.
- b. Joints and fittings for pressure sanitary sewer pipe shall be equal to the YCUA requirements for pressure pipe as specified in Chapter II, Water Supply System.

3. Manholes and Vaults

- a. Manholes and vaults shall be constructed of precast reinforced concrete sections, unless otherwise approved by YCUA.
- b. Precast reinforced concrete manhole sections shall conform to requirements of ASTM C478, latest revision.
- c. Precast manhole joints shall be modified grooved tongue with rubber gasket joints as described in item III. Materials.2., Wastewater System, Materials, Joints.
- d. Manhole steps, where required by YCUA, shall be reinforced polypropylene plastic, PS2-PFS, manufactured by M.A. Industries, Inc., or approved equal.
- e. Cover and frame for new manholes shall be East Jordan Iron Works #1040Z with Type "AGS" cover or approved equal. Covers shall be cast with the words "SANITARY SEWER" in raised letters spaced in from the periphery of the cover. New cover and frame for existing manholes (gasketed, no bolts, recessed pick holes) shall match the existing cover and frame.
- f. All new sanitary manholes shall have an infiltration fabric placed from the top of the frame casting base over the adjustment rings and over at least half of the transition cone section of the manhole chimney. The material shall be Infra-Shield, Canusa Wrap, WrapidSeal, or approved equal. Existing sanitary manholes located within the limits of a project that have the cone section excavated shall have the infiltration fabric installed. Existing manholes that are not excavated shall have the chimney coated internally with a product approved by YCUA.
- g. Rings for grade adjustment of covers and frames shall be injection molded high density polyethylene adjustment rings as manufactured by Ladtech, Inc., or approved equal. Use of other materials, such as precast concrete rings or concrete brick and mortar, will not be allowed unless otherwise approved by YCUA.
- h. All adjustment for matching road grade shall be made utilizing a molded indexed slope ring.
- i. Each adjustment ring shall be sealed with a 3/16" to 1/4" bead of butyl rubber sealant per the manufacturer's instructions. Sealant shall meet ASTM C-990, latest revision.
- j. All castings and adjustment rings shall be securely fastened to the cone of the structure with four 3/8" threaded rods. The rods shall be galvanized or stainless steel anchored to the structure with Redhead concrete anchors or equal. Stainless steel or galvanized nuts and washers shall be used to attach the casting.
- k. Manhole Drops

- i. Manhole drop connections shall be interior drops using the drop bowl as produced by Reliner-Duran Inc. or approved equal.
- ii. Drop bowl model "A-4" shall be used for all lines up through full 6" inlets. Drop bowl model "A-6" shall be used for all 8" inlets. Drop bowl model "B-8" shall be used for all 10" inlets. Lines larger than 10" shall be as directed by YCUA.
- iii. The force line hood shall be attached on models "A-4" and "A-6" when the incoming line is from a force main or the slope of the incoming gravity sanitary sewer is 3% or greater.
- iv. The drop pipe shall be secured to the manhole wall with Reliner-Duran, Inc. stainless steel adjustable clamping brackets or approved equal.
- v. The drop will face the flow downstream and have a custom built concrete bench that directs the flow into the channel.

4. Building Sewers

- a. Building sewers shall be constructed of solid wall PVC pipe conforming to ASTM D2751, latest revision, minimum schedule 40 or solid wall PVC conforming to the requirements of ASTM D3034, latest revision, with an SDR no greater than 26.
- b. Building sewers larger than 6" diameter shall be constructed of materials permitted for gravity sanitary sewers under the same conditions of depth.
- c. Joints in building sewers, including fittings, shall be solvent welded conforming to the requirements of item III. Materials.2.a.i., Wastewater System, Materials, Pipe Joints.
- d. Cleanouts, including bends, wye fittings, and caps shall be the same material as the building sewer. Caps shall be secured to the riser section of the cleanout via a threaded connection.
- e. Connection of new building sewers to existing gravity sanitary sewers shall be accomplished using a service saddle. Service saddles shall be a flexible tap saddle in tee configuration as manufactured by Fernco, Inc. or approved equal.

5. Pump Stations and Pressure Sanitary Sewers

- a. Unless otherwise approved by YCUA, pumps shall be submersible type. Pumps shall be manufactured by ITT Flygt or approved equal.
- b. Isolation valves on pressure sanitary sewers shall be plug valves.
 - i. Plug valves shall be non-lubricated, eccentric type with nitrile butadiene (hycar) or Buna-N resilient faced plugs. End connections shall generally be flanged or grooved for inside valves and mechanical joint for exterior ground-buried valves. Port area shall be equal to at least 80% of the nominal size pipe area. Valve bodies shall be suitably marked to indicate whether the valve is open or closed.
 - ii. The seating surface of the valve body shall be welded in stainless steel or nickel. Bearings at the top and bottom supporting the rotating element shall

be self-lubricating, corrosion-resistant type, suitable for sewage plant service. The valve shall be of the bolted bonnet design. Packing shall be adjustable and replaceable without disassembling of the valve. The valve body shall be cast or ductile iron marked to show seat side of valve. A grit seal shall be provided for the bottom of the valve shaft.

- iii. Plug valves shall be of adequate design to operate with a pressure of 50 psi on both sides or on either side of the valve without leakage.
6. On-site sewage disposal systems shall be constructed using materials approved by the Washtenaw County Environmental Health Division.

Construction Methods

1. General

a. Excavation

- i. Excavation, bedding, and backfill operations shall be accomplished in accordance with requirements outlined in Chapter VI, Grading and Earthwork, except as modified herein.
- ii. Pipes shall be laid on a compacted granular material placed on the bottom of the trench to a depth of not less than 3" for 24" diameter and smaller pipe and not less than 4" for pipe larger than 24" diameter. Concrete encasement or concrete cradle shall be used as directed by YCUA.
- iii. PVC pipe shall be laid on a compacted granular material placed on the bottom of the trench to a depth of not less than 4" conforming to Class B bedding as shown on the plans. Where shown on the plans, or where the pipe passes under a road with less than 4' of cover, the pipes shall be encased.
- iv. For all pipes, compacted granular material shall be placed at the sides of the pipe and cover not less than 12" above the crown of the pipe.
- v. "Granular Material" shall be Class II sand, pea gravel, or crushed stone conforming to ASTM C33 Size No. 67. Class II sand must be placed in no more than 6" layers and compacted to not less than 95% standard density for PVC and 90% standard density for reinforced concrete. Open graded stone is 100% upon placement and shucking into the haunch zone of the pipe.
- vi. Pea gravel or crushed stone used for bedding shall be separated from the sand backfill with a non-woven geotextile fabric. The fabric shall be Amoco 4551, or approved equal.

b. Existing Wastewater System

- i. Wastewater system improvements shall be constructed without interruption of service in the existing system. Temporary provisions to maintain service, such as bypass pumping, shall be the responsibility of the proprietor unless otherwise approved by YCUA.

- ii. The condition of the existing wastewater system will be observed by YCUA prior to the commencement of any improvements to the existing system or adjacent to the existing system. Any damage or adverse impact to the existing wastewater system resulting from the operations or actions of the proprietor or their designated representative shall be remedied by the proprietor. Damage or adverse impacts include, but are not necessarily limited to, introduction of debris to the system and improper adjustment of manhole castings.

2. Submittals

a. Certifications

All pipe, fittings, and appurtenances delivered to the job shall be accompanied by certification papers showing that the materials have been manufactured and tested in accordance with all applicable standards.

b. Shop Drawings

Shop drawings may be required for certain materials including, but not necessarily limited to, pump stations and appurtenances prior to fabrication and manufacture.

3. Delivery, Handling and Storage

- a. Wastewater system materials shall be delivered, handled, and stored in accordance with the manufacturer's recommendations and as specified by YCUA.

- b. Upon delivery to the project site all materials will be inspected by YCUA or its designated representative. Rejected materials shall be immediately removed from the project site by the proprietor.

4. Construction Sequence

Unless otherwise authorized by YCUA, construction of wastewater system improvements shall begin at the downstream end of the system and proceed upstream.

5. Installation

a. Sanitary Sewer Pipe

i. General

- (1) All pipe shall be laid true to the required lines and grades. All trenches when pipe laying is in progress shall be kept dry; and all pipes and fittings shall be uniformly supported on a properly trimmed bedding with holes at each joint to receive bells. All pipe shall be laid with bells uphill.
- (2) The grade as shown on the profiles is that of the pipe invert and that to which the work must conform. The grade shall be kept by levels, laser or other tools which shall be furnished by the proprietor. Each pipe shall be

laid accurately to the line and grade as shown on the Plans and in such manner as to form a close concentric joint with the adjoining pipe and prevent sudden offsets of the invert. The interior of sanitary sewer pipe shall, as the work progresses, be cleaned of all dirt, cement, debris and other superfluous materials. Bulkheads shall be used to keep foreign materials out of the open end of the sanitary sewer pipe when work is not in progress.

- (3) All pipe and fittings shall be carefully lowered and moved into position in the trench or vault in a controlled manner such as will prevent damage to the pipe and any coatings or lining. An excessive amount of scratching on the surface of the PVC pipe will be considered cause for rejection.
 - (4) The trench shall be backfilled closely behind the pipe laying. Unless otherwise directed or permitted by YCUA, the backfilling shall follow and be completed to the top of the trench within two pipe lengths behind pipe laying.
 - (5) All cutting of the pipe shall be done in a neat workmanlike manner with the least amount of waste and without damage to existing or new lines. A fine tooth saw, tubing cutter or similar tool may be used to cut PVC pipe. Cuts must be square. Ragged edges shall be removed with a cutting tool or file.
 - (6) After cutting bell and spigot or socket pipe, a stop mark shall be made with a pencil or crayon using dimensions as shown by the manufacturer's instructions or by using another pipe in the field as a guide.
 - (7) Breaks in pipe or joints shall be repaired by the proprietor to the satisfaction of YCUA.
- ii. Gravity Sanitary Sewer
- (1) Solid wall PVC pipe, shall be installed in accordance with the requirements of ASTM D2321, latest revision.
 - (2) Extra strength clay pipe shall be installed in accordance with the requirements of ASTM C12, latest revision.
 - (3) Reinforced concrete pipe shall be installed in accordance with the requirements of ASTM C76, latest revision.
- iii. Pressure Sanitary Sewer
- (1) Ductile iron pipe and appurtenances shall be installed as prescribed in item II. Construction Methods.5.a., Water Supply System, Construction Methods, Water Transmission and Distribution Mains. Ductile iron pipe shall have SewerSafe, ProtectO, or other coating as approved by the Engineer.
 - (2) Plastic pressure sanitary sewer pipe shall be installed in accordance with the requirements of ASTM D2274, latest revision.

All joints shall be made-up in accordance with the manufacturer's instructions using materials and equipment especially prepared for the type of joint to be used.

- b. Manholes and Vaults
 - i. Precast base section shall be placed on a well-graded granular bedding course conforming to requirements for sewer bedding, but not less than 6" in thickness and extending to the limits of the excavation. The bedding course shall be firmly tamped and made smooth and level to ensure uniform contact and support of the precast element.
 - ii. Manhole and Vault Sections
 - (1) All lift holes and all joints between precast elements in manholes shall be thoroughly wetted and then completely filled with mortar and smoothed to ensure watertightness. The outside of manhole joints shall be sealed with infiltration wrap.
 - (2) Precast sections shall be placed and aligned to provide vertical sides and vertical alignment of the manhole steps if required by YCUA. The complete manhole shall be rigid, true to dimensions, and watertight.
 - (3) Epoxy joints of polymer concrete manholes shall be inspected for damage and cleaned of all debris. Apply compatible epoxy material for bonding in accordance with manufacturer's instructions.
 - iii. Placing of Castings, Grade Rings, and Top Sections
 - (1) Castings placed on concrete surface shall be set in full mortar beds. The mortar shall be mixed in proportion of 1 part Portland cement to 2 parts sand, by volume, based on dry materials. Castings shall be set accurately to the finished elevation so that no subsequent adjustment will be necessary unless otherwise specified by YCUA.
 - (2) Where castings are located in paved surfaces or areas which have been brought to grade, not more than 15" shall be provided between the top of the cone or slab and the underside of the casting for adjustment of the casting to street grade. A minimum of 6" of adjustment shall be provided at each manhole.
 - (3) Where castings are located in unpaved traffic bearing areas, provide not more than 12" of adjusting rings between the top of the cone or slab and the underside of the casting for adjustment of the casting to finished grade. Set the top of the casting 5" below finished grade, unless otherwise directed by YCUA.
 - (4) Where castings are located in cultivated agricultural areas, the top of the manhole casting shall be set at least 6" higher than the finished grade, and in noncultivated areas, set the casting flush with the finished grade, unless otherwise directed by YCUA.
 - (5) Point up and make watertight adjusting rings used to set the casting to grade. Infiltration wrap shall cover the adjustment from 6" down on the cone to at least 4" from the lip of the frame.
 - (6) All channels shall be constructed to the full flow depth of the pipe.

c. Pumps and Appurtenances

Pumps and appurtenances, as well as other wastewater system infrastructure, shall be installed in accordance with all applicable ASTM standards, manufacturers recommendations, and as directed by YCUA.

d. Pressure Sanitary Sewer

Pressure sanitary sewer shall be tested in accordance with the requirement for hydrostatic testing as prescribed for water supply system improvement in Chapter IV.

6. Testing

a. General

All sanitary sewers shall be subjected to infiltration, exfiltration or low pressure air tests, or a combination thereof prior to final acceptance by YCUA. In addition, all PVC and ABS plastic sewers shall be subjected to deflection testing by means of a nine-point deflection test mandrel.

YCUA or its designated representative shall be present for all testing operations. If testing is to be done by the proprietor, only properly trained personnel shall be allowed to perform the testing work. If testing is to be done by municipal agency work forces, then the proprietor shall be responsible for coordinating with the inspector in order to schedule the testing.

In the event that the sanitary sewer pipe fails any of the required tests, the proprietor shall be responsible for repairing the pipe and repeating the test until acceptable results are achieved.

The method of testing and measurement shall be approved by YCUA. The proprietor shall provide all necessary equipment and labor for making the tests.

b. Infiltration Test

All sanitary sewers that are over 24" diameter shall be subjected to an infiltration test. Also, all sanitary sewers that are 24" diameter and smaller and where the ground water level is more than 7' above the top of the sewer shall be subjected to an infiltration test.

The infiltration rate for all sanitary sewers shall not exceed a maximum of 200 gal./in. diameter per mile of sewer per 24 hours.

c. Low Pressure Air Test

All sanitary sewers that are 24" diameter or smaller and where the ground water level is 7' or less above the top of the sewer shall be subjected to a low pressure air test.

Sight tubes are not permitted in the YCUA sanitary sewer system. Groundwater in the sanitary trench, for purposes of air testing, shall be measured by a piezometer tube located outside and adjacent to each manhole. The piezometer tube shall have a screened or slotted end, be backfilled with one cubic foot of

open graded aggregate at the end, and open at atmosphere between two (2) and three (3) feet above grade. The open graded aggregate around the end of the Piezometer shall be hydraulically connected to the sewer trench's open aggregate bedding and backfill. Upon substantial completion and acceptance of the sewer for use, the piezometer tube shall be removed or grouted, and abandoned at least three feet below grade.

The procedure for air testing of sanitary sewers shall be as follows:

The sanitary sewer line shall be tested in increments between manholes. The line shall be cleaned and plugged at each manhole. Such plugs shall be designed to hold against the test pressure and shall provide an airtight seal. One of the plugs shall have an orifice through which air can be introduced into the sewer. An air supply line shall be connected to the orifice. The supply line shall be fitted with suitable control valves and a pressure gauge for continually measuring the air pressure in the sewer. The pressure gauge shall have a minimum diameter of 3½" and a range of 0 – 10 psig. The gauge shall have minimum divisions of 0-10 psig and accuracy of plus or minus (+/-) 0.04 psig.

The sanitary sewer shall be pressurized to 4 psig greater than the greatest back pressure caused by ground water over the top of the sanitary sewer pipe. At least 2 minutes shall be allowed for the air pressure to stabilize between 3½ and 4 psig. If necessary, air shall be added to the sewer to maintain a pressure of 3½ psig or greater.

After the stabilization period, the air supply control valve shall be closed so that no more air will enter the sanitary sewer. The sanitary sewer air pressure shall be noted and timing for the test begun. The test shall not begin if the air pressure is less than 3½ psig, or such other pressure as is necessary to compensate for ground water level.

The time required for the air pressure to decrease 1.0 psig during the test shall not be less than the time shown in the following Air Test Tables. The proprietor shall use the appropriate test table based upon the sanitary sewer pipe material.

Table SA-1
Air Test Table for Vitrified Clay and Concrete Pipe

Specification Time (min:sec) Required for Pressure Drop from 3-1/2 to 2-1/2 PSIG When Testing One Pipe Diameter Only Pipe Diameter, Inches																
		4	6	8	10	12	15	18	21	24	27	30	33	36	39	42
Length of Line, Feet	25	0:04	0:10	0:18	0:22	0:27	0:32	0:36	0:45	0:54	1:03	1:12	1:21	1:30	1:39	1:50
	50	0:09	0:21	0:36	0:45	0:54	1:03	1:12	1:30	1:48	2:06	2:24	2:42	3:00	3:18	3:39
	75	0:14	0:32	0:54	1:08	1:21	1:34	1:48	2:15	2:42	3:09	3:36	4:03	4:30	4:57	5:29
	100	0:18	0:42	1:12	1:30	1:48	2:06	2:24	3:00	3:36	4:12	4:48	5:24	6:00	6:36	7:18
	125	0:22	0:52	1:30	1:52	2:15	2:38	3:00	3:45	4:30	5:15	6:00	6:45	7:30	8:15	9:08
	150	0:27	1:03	1:48	2:15	2:42	3:09	3:36	4:30	5:24	6:18	7:12	8:06	9:00	9:54	10:57
	175	0:32	1:14	2:06	2:38	3:09	3:40	4:12	5:15	6:18	7:21	8:24	9:27	10:30	11:33	12:47
	200	0:36	1:24	2:24	3:00	3:36	4:12	4:48	6:00	7:12	8:24	9:36	10:48	12:00	13:12	14:36
	225	0:40	1:34	2:42	3:22	4:03	4:44	5:24	6:45	8:06	9:27	10:48	12:09	13:30	14:51	16:26
	250	0:45	1:45	3:00	3:45	4:30	5:15	6:00	7:30	9:00	10:30	12:00	13:30	15:00	16:30	18:16
	275	0:50	1:56	3:18	4:08	4:57	5:46	6:36	8:15	9:54	11:33	13:12	14:51	16:30	18:09	20:06
	300	0:54	2:06	3:36	4:30	5:24	6:18	7:12	9:00	10:48	12:36	14:24	16:12	18:00	19:48	21:54
	350	1:03	2:27	4:12	5:15	6:18	7:21	8:24	10:30	12:36	14:42	16:48	18:54	21:00	23:06	25:33
	400	1:12	2:48	4:48	6:00	7:12	8:24	9:36	12:00	14:24	16:48	19:12	21:36	24:00	26:24	29:12
	450	1:21	3:09	5:24	6:45	8:06	9:27	10:48	13:30	16:12	18:54	21:36	24:18	27:00	29:42	32:51
	500	1:30	3:30	6:00	7:30	9:00	10:30	12:00	15:00	18:00	21:00	24:00	27:00	30:00	33:00	36:30

Note: Table SA-1 is taken from the National Clay Pipe Institute (NCPI) tables which are based upon ASTM C828 "Test Method for Low Pressure Air Test for Vitrified Clay Pipe Lines" and ASTM C924 "Standard Practice for Testing Concrete Pipe Sewer Lines by Low Pressure Air Test Method."

Table SA-2
Air Test Table for PVC and ABS Pipe
Minimum Specified Time Required for a 1.0 PSIG Pressure Drop
For Size and Length of Pipe Indicated for Q=0.0015 *

Pipe Dia. (in)	Minimum Time, (min:sec)	Length for Minimum Time, ft.	Time for Longer Length, seconds	Specified Time for Length (L) Shown, (min:sec)								
				100 feet	150 feet	200 feet	250 feet	300 feet	350 feet	400 feet	450 feet	
4	3:46	597	0.380 L	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46
6	5:40	398	0.854 L	5:40	5:40	5:40	5:40	5:40	5:40	5:40	5:42	6:24
8	7:34	298	1.520 L	7:34	7:34	7:34	7:34	7:36	8:52	10:08	11:24	
10	9:26	239	2.374 L	9:26	9:26	9:26	9:53	11:52	13:51	15:49	17:48	
12	11:20	199	3.418 L	11:20	11:20	11:24	14:15	17:05	19:56	22:47	25:38	
15	14:10	159	5.342 L	14:10	14:10	17:48	22:15	26:42	31:09	35:36	40:04	
18	17:00	133	7.692 L	17:00	19:13	25:38	32:03	38:27	44:52	51:16	57:41	
21	19:50	114	10.470 L	19:50	26:10	34:54	43:37	52:21	61:00	69:48	78:31	
24	22:40	99	13.674 L	22:47	34:11	45:34	56:58	68:22	79:46	91:10	102:33	
27	25:30	88	17.306 L	28:51	43:16	57:41	72:07	86:32	100:57	115:22	129:48	
30	28:20	80	21.366 L	35:37	53:25	71:13	89:02	106:50	124:38	142:26	160:15	
33	31:10	72	25.852 L	43:05	64:38	86:10	107:43	129:16	150:43	172:43	193:53	
36	34:00	66	30.768 L	51:17	76:55	102:34	128:12	153:50	179:29	205:07	203:46	

Note: Table SA-2 is taken from ASTM F1417 “Standard Test Method for Installation and Acceptance of Plastic Gravity Sewer Lines Using Low Pressure Air Test”. ASTM F1417 conforms to Uni-Bell “Recommended Practice for Low Pressure Air Testing of Installed Sewer Pipe” (UNI-B-6-98).

Q is the allowable leakage rate in cubic feet/minute/square foot of inside surface area of pipe.

d. Exfiltration Test

Exfiltration or leakage from the sanitary sewer line can be measured by recording the water level drop over a given period of time in a standpipe placed and connected in the upstream manhole. The measured drop in the time period can be converted by calculations to the leakage rate in terms of gallons per inch of pipe diameter per mile per day.

Exfiltration tests may be substituted for low pressure air tests where approved by YCUA. Exfiltration tests will not be allowed where the external water pressure exceeds 4’.

For the purpose of exfiltration testing, the internal water level shall be equal to the external water level plus 4’ as measured from the top of the highest pipe in the system being tested. This could be either a house lead or a lateral. However, the maximum total height of water above the invert of the pipe at the lower end shall not exceed 16’. A prospective test that would exceed this 16’ limit should

not be taken. The line under construction can be broken down into smaller sections such that the maximum head of 16' will not be exceeded.

The maximum exfiltration rate shall be the same as that permitted for the infiltration test. The exfiltration test procedure is summarized as follows:

- i. All service laterals, stubs and fittings into the sewer line(s) being tested shall be properly capped or plugged, and carefully braced to resist the thrust actions developed by the internal water pressure. In preparing the blocking of plugs or end caps, it is extremely important to recognize that the 5' to 10' of head in the standpipe will exert considerable thrust against the plugs or caps.
- ii. A plug is inserted and tightened in the inlet pipe of the downstream manhole to which the water supply connection is made for filling the pipe.
- iii. The upper manhole is plugged and securely tightened for connection to the standpipe. The standpipe is then placed in this manhole and connected to the tapped plug. The standpipe must be capable of handling from 5' to 10' of water head to determine the tightness and soundness of the sewer line, as specified and directed by YCUA.
- iv. Water is introduced into the line at the downstream manhole until the standpipe in the upstream manhole has been completely filled. By filling the line from the lowest level, the air in the line is easily pushed ahead and, finally expelled through the standpipe at the upper end of the test section. Care should be taken to minimize entrapped air that will give distorted test results. The rate of drop in the standpipe may be quite rapid until the air has been expelled.
- v. After filling with water, the line must be allowed to stand for at least 4 hours before beginning the test. During this time some water absorption into the manhole structures and sewer pipe will take place. After the water absorption has stabilized, the water level in the standpipe is checked and water added if necessary.
- vi. The test is now ready to begin. The drop in the standpipe is measured and recorded over a 15-minute period. To verify the first results, a second 15-minute test is suggested. This will also verify whether a stable condition exists in the line.
- vii. The measured drops in the standpipe are converted to leakage in terms of gallons per inch diameter per mile per day.
- viii. Another commonly used method of conducting water exfiltration testing is to utilize the manhole in lieu of a standpipe. The test procedure is exactly as outlined for using the standpipe. However, since the manhole is larger in diameter than the standpipe, this method normally requires a minimum 2 hour test period in order to be able to record a measurable water level drop. Manhole leakage must also be considered in the leakage rate and test results.

Caution should be taken when conducting exfiltration tests on sanitary sewer lines laid on steep grades. Consideration must be given to the downstream portion of the system to prevent excessive pressures in these lower lines. For these installations and where the upstream manholes are very deep, it is not advisable to fill the standpipe or manhole to the top when performing the test.

e. Deflection Test for Plastic Pipe

The allowable maximum deflection shall be 5% of internal pipe diameter. A deflection test gauge (Go, No-Go Gauge) as manufactured by Hurco Industries, Cherne Industries, or approved equal shall be used to verify that the maximum allowable deflection standard is met. The test gauge must have a minimum of 9 points. Proving rings must be provided to verify gauge diameter. The gauge shall be pulled through manually; force will not be allowed. Pipe with deflections greater than 5% will be considered unacceptable and shall be re-laid by the proprietor.

f. Closed-Circuit Television Inspection

As a means of insuring that pipe laying was properly done and that all joints are in a "home" position, the applicant shall be responsible for closed-circuit television inspection of all pipe installed that is 36" diameter and smaller. This shall be done no sooner than 30 days after sewer installation is complete. A minimum of 24 hours' notice shall be provided to YCUA prior to closed-circuit television inspection so that a representative may be present. The closed-circuit television inspection shall be recorded on acceptable digital file formats (DVD, thumb drive, downloadable file, etc.), a copy of which shall be provided to YCUA for review. A satisfactory review of the closed-circuit television inspection by YCUA shall be a condition for final acceptance by YCUA. Typical items to be reviewed on the digital file format will include pipe deflection, pipe settlement, lead connections, joints and pipe cleanliness. If the digital file format review reveals unsatisfactory conditions, the deficiencies shall be corrected and the affected pipe sections shall be re-inspected by the proprietor for review by YCUA.

VI. STORMWATER MANAGEMENT

General

1. Stormwater management systems shall be designed in accordance with the Washtenaw County Water Resources Commissioner's Office (WCWRC) Rules and Guidelines – Procedures and Design Criteria for Stormwater Management Systems, latest revision. The Township Planning Department and Engineer may modify these requirements on a case by case basis for sites that are not under WCWRC jurisdiction and not adding more than 1,500 square-foot of impervious surface to a site.

EGLE is required to review projects due to thermal/environmental sensitivity in the following watersheds: Chicking Ditch and Paint Creek watersheds.

2. A long-term stormwater management maintenance agreement may be required as prescribed by the Township. In the event an agreement is required, the agreement shall be submitted as part of final acceptance and project closeout.
3. Where possible, the applicant is strongly encouraged to propose low-impact stormwater management designs that limit the amount of runoff generated on site.
4. Restricted discharge rates and/or improvements to downstream drainage courses may be required as prescribed by the Charter Township of Ypsilanti Stormwater Master Plan of 1994. The applicant shall contact the Township Engineer and/or the WCWRC to determine what design criteria specified in the Stormwater Master Plan apply to the proposed project.
5. Where an approved point of discharge is not available on the site, the applicant shall make such offsite drainage improvements as are necessary to provide positive drainage to an approved outlet, as determined by the Township Engineer and/or the WCWRC. Such improvements shall be located in an easement secured by the applicant. The easement form and width of the easement shall be subject to Township approval.
6. Soil borings in the location of any proposed stormwater storage facility are required. Soil borings shall include groundwater surface elevation information. Where infiltration is proposed, infiltration rates shall be calculated. For facilities proposing basements, soil borings must be performed in a grid pattern within the buildable areas to show the ground water characteristics of the site.
7. Plan and profile views shall be provided for all proposed stormwater management system improvements. The plan and profile shall be presented on the same plan sheet and shall be vertically oriented.
 - a. Design calculations for all components of stormwater management systems, including but not necessarily limited to storm sewers, channels and detention facilities, shall be provided on the plans.

- b. A drainage area map shall be included on the plans. The map shall define the areas tributary to catch basins and inlets (including upstream and offsite areas). The design calculations shall include the determination of the weighted runoff coefficients for the areas tributary to each specific inlet or outlet. The design calculations shall also include justification for the initial time of concentration used for the storm sewer design calculations.
- c. The following information must be shown in the plan view of the proposed storm sewer system improvements:
 - i. Size, material and type of pipe.
 - ii. Length between structures.
 - iii. Slope of sewer between structures.
 - iv. Where required, a dedicated stormwater easement must be shown on the plans. The easement width shall be in accordance with the following:
 - (1) 12' for open drainage along rear and side property lines.
 - (2) A minimum of 20' for enclosed storm drains.
 - (3) A minimum of 30' for open swales (cross lot drainage).
 - (4) Top of casting and all invert elevations at each structure.
 - (5) Progressive numbering system on structures.
- d. The following information must be shown in the profile view of the proposed storm sewer system improvements:
 - i. Existing and proposed ground elevations.
 - ii. Size, material and type of pipe.
 - iii. Length between structures.
 - iv. Slope of sewer between structures.
 - v. Hydraulic gradient between structures.
 - vi. Top of casting and all invert elevations at each structure.
 - vii. All utility crossings.
 - viii. Special backfill areas, i.e. sand.
 - ix. Progressive numbering system.
 - x. Adjacent existing or proposed utilities plotted where parallel.
- e. Where storm sewer construction is proposed, the Charter Township of Ypsilanti standard storm sewer detail sheets must accompany the plans. The standard details are included in the Digital Appendix.
- f. A stormwater management long-term maintenance agreement and plan shall be provided. An example is provided in Appendix C.

Design Criteria

Components of stormwater management systems shall be designed in accordance with the requirements of the WCWRC, as noted previously. The WCWRC design criteria shall apply to all stormwater management system components, regardless of whether the facilities will be publicly dedicated or privately maintained at the completion of the project.

1. Stormwater discharge rates shall be determined as prescribed in item 1 of Part A of this section.

2. Surface runoff shall be determined as outlined by the WCWRC.
3. Stormwater conveyance systems shall be designed per the requirements prescribed by the WCWRC. The following are acceptable forms of stormwater conveyance:
 - a. Natural streams and channels.
 - b. Vegetated swales and open ditches.
 - c. Storm sewers. Enclosed storm sewer systems are generally comprised of the following elements:
 - i. Pipe
 - ii. Manholes
 - iii. Catch Basins
 - iv. Inlets
 - v. Sump pump leads shall be connected into an enclosed system and shall be tapped directly into storm sewer structures or cleanouts at or above the hydraulic grade line of the 10-year storm. Sump pump leads shall not be discharged directly to open surfaces.
 - d. Culverts.
4. Detention/Retention facilities shall be designed per WCWRC guidelines.
5. Underground detention/retention facilities shall include all required bedding, cleanouts and monitoring manholes and can only count up to 30% of void volume for storage or as determined to be acceptable by the WCWRC.
6. Access easements or areas to be specifically preserved for entry to perform maintenance shall be provided on all retention, detention, or infiltration facilities.
7. Low impact design (LID) and/or Best Management Practices (BMPs) for stormwater management is encouraged within Ypsilanti Township however must be in conformance with the Low Impact Design Manual of Michigan and also in compliance with the requirements of the WCWRC. Examples of low impact design include:
 - a. Bioretention (rain garden)
 - b. Detention basin
 - c. Infiltration basin/trench
 - d. Bioswale

Materials

1. Vegetative cover for natural streams and channels, open ditches and swales, as well as detention/retention facilities shall be in accordance with the requirements of the WCWRC.

2. Sewer Pipe

- a. Storm sewer pipe shall conform to the current American Society for Testing Materials “Specifications for Reinforced Concrete Culvert, Storm Drain and Sewer Pipe”, ASTM C-76 for circular pipe, or ASTM C-507 for horizontal elliptical pipe, latest revision.
- b. If other materials are proposed for use, the applicant shall furnish the load carrying design analysis for the pipe for the proposed depth conditions.

3. Pipe Joints

- a. Pipe joints shall conform to the following requirements:
 - i. Modified Grooved Tongue (M.G.T.) pipe shall have a rubber gasket snapped into a groove cast into the tongue.
 - ii. The modified groove or bell end of the pipe shall be made smooth and shall have not over a 3.5% slope for sizes 10” – 24”, or a 2% slope for sizes 27” – 108”, tapered to fit the rubber gasket to tolerances as determined by the gasket manufacturer.
 - iii. Rubber gasket joints shall be in accordance with the Specification for “Joints for Concrete Pipe and Manholes, using Rubber Gaskets,” ASTM Designation: C-443, latest revision.
 - iv. Rubber gasket joints shall be lubricated and coupled in accordance with the pipe manufacturer’s printed instructions.

4. Manholes

- a. Manholes shall be precast reinforced concrete sections in accordance with the Ypsilanti Township Standard Details as seen in the Digital Appendix.
- b. Precast reinforced concrete manhole sections shall conform to the requirements of the American Society for Testing and Materials, “Specifications for Precast Reinforced Concrete Manhole Sections, ASTM Designation C-478, latest revision.
- c. Wall thickness shall depend on depth and shall be subject to the approval of the Township’s Engineer.
- d. Pre-cast or HDPE grade adjustment rings are encouraged under paved areas.
- e. Brick for casting adjustment or concrete block for manhole, inlet, and catch basin construction shall conform to the requirements of the current Michigan Department of Transportation “Standard Specifications for Construction,” latest revision. Wall thicknesses shall depend on depth and shall be subject to the approval of the Township’s Engineer.

- f. Pre-cast manhole joints shall be as described in Section IV. Materials.3.a.iii, Stormwater Management, Materials, Pipe Joints.
- g. A minimum of three to a maximum of six adjustment courses shall be placed above the top of the cone section on all precast or block manholes.
- h. Manhole covers and frames shall be East Jordan Iron Works #1040 with Type "B" cover, or approved equal. All storm structures receiving runoff shall include raised lettering reading "Dump no waste, Drains to Waterways" and a fish logo.
- i. The entire outside surface of all concrete block and brick masonry portion of drainage structures shall be plaster coated with ½" thick mortar.
- j. All manholes on storm sewers 18" in diameter and smaller shall have 2' deep sumps unless otherwise called for on the plans.

5. Catch Basins

- a. Catch basins shall be constructed of brick, precast manhole blocks, or precast reinforced concrete manhole sections, as described in Part 4 of this section, in accordance with the Ypsilanti Township Standard Details.
- b. Pavement catch basin and inlet frames and grates shall be in accordance with the requirements of the Washtenaw County Road Commission.
- c. Lawn catch basin and inlet frames and grates shall be East Jordan #1000, with Type "N" grate, or approved equal. All storm structures receiving runoff shall include raised lettering reading "Dump no waste, Drains to Waterways" and a fish logo.
- d. Ditch catch basin frames and grates shall be East Jordan #1000, with Type 01 Beehive grate, or approved equal.
- e. Parking lot catch basin frames and grates shall be selected at the discretion of the applicant's engineer, but shall be capable of carrying the anticipated traffic loads, and shall have sufficient opening area to receive the design stormwater runoff. Where possible, catch basins shall be placed out of the expected wheel paths of vehicles. When catch basins are placed within areas of travel, a concrete apron shall be provided.

Construction Methods

1. Construction Progress

Unless otherwise permitted by the Township Engineer and/or the WCWRC, construction of storm sewers shall begin at the outlet end of the sewer and proceed upgrade.

2. Certification and Inspection

All pipe and fittings delivered to the job shall be accompanied by certification papers showing that pipe and fittings have been tested in accordance with the applicable specifications and that pipe and fittings meet the specifications for this project. All pipe and fittings will be inspected upon delivery to the job site. No cracked, broken or damaged pipe or fitting will be allowed in this work. Rejected pipe and fittings will be immediately removed from the job site.

No pipe or fittings known to be defective shall be laid in the work. Any piece found to be defective after it has been laid shall be removed and replaced with a sound piece. If the major part of a defective pipe is sound, the good end may be cut off and used. Every such cut shall be square and ground smooth. Cut surfaces of ductile iron pipe shall be painted with two coats of approved asphaltum metal protective paint where required by the Township.

Full time inspection is required by the Township Engineer for all underground storm sewer infrastructure.

3. Excavation

Excavation, bedding, and backfill for open cut pipe installations and structures shall be accomplished in accordance with requirements in the Grading and Earthwork Section.

4. Laying Pipe

a. Handling Pipe and Fittings

All pipes and castings shall be unloaded and distributed along the line of work in such manner and with such care as will effectually avoid damage to any pipe or fitting. Dropping pipe or fittings directly from the truck will not be permitted. Care must also be taken to prevent abrasion of the pipe coating. Wherever the coating may have been rubbed off, the part shall be recoated as may be required by the nature of the pipe coating.

b. Placement of Pipe

Each pipe shall be inspected for defects prior to being lowered into the trench. The inside of the pipe and the outside of the spigot shall be cleaned of any dirt or foreign matter.

Construction shall begin at the outlet end and proceed upgrade with spigot ends pointing in the direction of flow. Pipes shall be laid on a minimum 4" MDOT class II natural sand cushion. A 6" MDOT class II natural sand cushion shall be provided if called for on the plan details. All plastic pipe bedding shall be clean course aggregate 6A, 6AA, or peastone. If the subgrade has been disturbed so that refilling is necessary to bring the pipe to grade, such refilling shall be done with MDOT 6A coarse aggregate thoroughly tamped in place. Bell holes shall be excavated so that the full length of the pipe barrel will bear uniformly on the sand cushion.

Pipes shall be centered in bells or grooves and pushed tight together to form a smooth and continuous invert. After laying pipe, care shall be taken so as not to disturb its line and grade. Any pipe found off grade or out of line shall be re-laid properly.

c. Line and Grade

Pipe shall be carefully laid to line and grade and shall have bearing over its entire length except at joints where the joint hole shall be of such size as to give adequate room for working. Pipe shall be laid with a minimum cover (2.5') as shown on the standard details. When a pipe laser is not used, elevations will be taken and recorded at each pipe bell, and a transit, plumb bob, or other line of sight device will be used to maintain line.

d. Excavation Below Bottom of Pipe

As a result of construction procedures or where excavation has not uncovered a stable foundation subgrade at a depth of 6" below the bottom of the proposed pipe, excavation shall continue downward below the bottom of the proposed pipe to reach stable foundation soil. The space resulting from such excavation and the pipe bedding shall be filled and constructed with MDOT 6A coarse aggregate and bedding as specified in the Grading and Earthwork section.

e. Laying and Bedding of Pipe

Pipe installation shall be made in accordance with the published installation guide of the pipe manufacturer except as otherwise specified herein. Whenever instructions given by the manufacturer are at variance with the provisions specified herein, the laying standards provided herein shall govern.

Proper tools, including pipe pullers, special cutters, spacing yokes, machining tools, test caps, ring feeler gauges, etc. shall be provided at the site of the work for installation of the pipe.

Immediately before laying each section of pipe or fitting, it shall be thoroughly cleaned of all debris, dirt or other accumulated foreign material. It shall be inspected for damage to the coating or pipe material and repairs shall be made where required. If deemed irreparable by the Township Engineer, then it shall be removed from the job site. Care shall be taken to keep the interior of previously laid pipe clean and free from dirt and other foreign material. Bulkheads or other means shall be used at the open end of the previously laid pipe for this purpose.

After a length of pipe is placed in the trench, the spigot shall be centered in the bell of the adjacent pipe, the pipe shoved into proper position in the collar or bell and brought into true alignment. The pipe shall then be secured with MDOT class II natural sand, or clean coarse aggregate 6A, 6AA, or peastone for plastic pipe that is carefully tamped under and on each side of the pipe.

f. Concrete Cradle for Pipe

Where required, pipe shall be installed with a cradle of MDOT Grade S3 concrete.

Each pipe shall rest on a 6" minimum thickness bed of dry mix concrete that is shaped to fit the bottom of the pipe. The dry mix concrete shall be MDOT Grade S3.

After setting the pipe, the space between the outside of the pipe and the undisturbed trench bank shall be filled to a level equal to a point 1 foot above the top of the pipe with MDOT Grade S3. The concrete shall have a 5" slump and be mechanically vibrated to insure complete filling of the annular space between the excavated face of the original ground and the outside face of the pipe.

g. Pipe Placed in Casings

Pipes will be placed in casing pipe in the locations shown on the drawings. Under this work the contractor will place the carrier pipe, fill the annular space between the casing and carrier pipe, place bulkheads, and complete all backfilling.

For road crossings, all void spaces between the casing pipe and the carrier pipe will be filled with sand meeting the requirements of MDOT 2NS natural sand. Sand will be placed by flushing or other methods approved by the Township Engineer. The contractor will furnish the Township Engineer with information on the quantity of sand placed.

The annular space at the ends of the casing pipe will be bulkheaded with a minimum of 12" thick solid masonry with a 1/2" fiberboard cushion between the masonry and carrier pipe.

All necessary skidding materials required to protect the carrier pipe will be furnished by the contractor.

h. Jointing

Where pipe is laid in wet trenches, trenches with running sand, or in trench conditions where manual means will not allow pushing the pipe home, mechanical means shall be utilized for pulling the pipe home and holding the pipe joints tight until completion of the line. Mechanical means shall consist of a cable placed inside the pipe with a suitable winch, jack, or come-along for pulling the pipe home and holding the pipe in position.

All joints on elliptical concrete pipe (42" equivalent diameter and larger) shall be cement mortar pointed on the inside.

i. Gravity Pipe

Where pipe is laid in wet trenches, trenches with running sand, or in trench conditions where manual means will not allow pushing the pipe home, the applicant shall provide and use mechanical means for pulling the pipe home and holding the pipe joints tight until completion of the line. Mechanical means shall consist of a cable placed inside the pipe with a suitable winch, jack, or come-along for pulling the pipe home and holding the pipe in position.

j. Pressure Pipe

Refer to the Water Supply System Section for acceptable construction methods and approved materials for joints and joint restraint for ductile iron pressure pipe.

k. Backfill

Backfill shall be placed in accordance with the Grading and Earthwork section.

5. Structures and Appurtenances

- a. Construction methods for drainage structures shall conform to section 403.03 of the current Michigan Department of Transportation Standard Specifications for Construction except as herein provided.
- b. All precast sections shall bear the stamp of an approved laboratory as having been tested and delivered from tested stock of the manufacturer.
- c. Precast sections shall be constructed so that no more than 50% of the circumference, measured on the inside face, is deleted on any horizontal plane for sewer pipe openings. There shall be no less than 12" of residual concrete measured on any horizontal plane between pipe openings.
- d. Excavation shall be carried to the depth required to permit the construction of the base in accordance with the requirements of the Ypsilanti Township Standard Details. The excavation shall be sufficiently wide to allow for shoring, bracing, or formwork, should any or all be necessary. Also, the excavation shall allow for accessibility in plastering the exterior of all brick masonry. The bottom of the excavation shall be trimmed to a uniform horizontal bed to receive the concrete base. The excavated section shall be completely dewatered before any concrete is placed therein. The standard details are included in the Digital Appendix.
- e. With the exception of drainage structures having sumps, the bottom of the structures shall be channeled to provide for smooth flow through the manhole. Channels shall be formed using MDOT Grade S3 concrete.
- f. Connections to manholes shall be properly supported and braced.

6. Stubs, Connections, and Bulkheads

- a. Existing sewers shall be connected in where called for on the plans. Bulkheads shall be placed or removed where called for on plans.
- b. Unless otherwise noted on the plans, stubs shall consist of one length of sewer pipe with watertight stopper bulkhead or, where approved by the Township Engineer, a brick and mortar bulkhead. Pipe stubs shall be of the same material as the sewer to which they connect unless specified otherwise.

7. Cleaning

- a. All sewers shall be thoroughly cleaned before final acceptance.

8. Testing

a. General

The applicant shall be responsible for providing all necessary equipment and labor for making the tests.

b. Deflection Test for Plastic Pipe

The allowable maximum deflection shall be 5% of internal pipe diameter. A Deflection Test Gauge (Go, No-Go) as manufactured by Hurco Technologies, Cherne Industries, or approved equal shall be used to verify that the maximum allowable deflection standard is met. Pipe with deflections greater than 5% will be considered unacceptable and shall be replaced.

c. Digital Recording (Public Storm Sewers)

As a means of insuring that pipe laying was properly done and that all joints are in a "home" position, the applicant shall provide for digital recording of 10% of the pipe footage laid (pipe 36" diameter and smaller), with no less than one manhole run being televised on each project. The Township Engineer shall review and approve which pipe runs are to be recorded. The recording shall be done no sooner than thirty (30) days after sewer installation is complete. The applicant shall provide 24 hours notice to the Township Engineer prior to recording so that a representative may be present. A small amount of water must be poured in the pipe before recording to ensure identification of low spots. A satisfactory review of the DVD by the Township Engineer shall be a condition for sewer acceptance by Ypsilanti Township. Typical items to be reviewed on the DVD will include pipe deflection, pipe settlement, connections, joints and pipe cleanliness. If the DVD review reveals unsatisfactory conditions, all deficiencies shall be corrected and the affected pipe sections re-televised for review by the Township Engineer.

VII. PAVING IMPROVEMENTS

General

1. All roads proposed for construction in Ypsilanti Township shall be public roads under the jurisdiction of Washtenaw County Road Commission (WCRC) unless otherwise permitted by Township ordinance. Plans for such roads and/or accompanying sidewalks/pathways shall be prepared in accordance with the current WCRC "Procedures and Guidelines for Developing Public Roads," and the AASHTO Guide for the Development of Bicycle Facilities. In addition to any submittals required for WCRC approval, plans shall also be submitted to the Charter Township of Ypsilanti for review of the proposed road improvements in relation to other existing and proposed facilities. The applicant shall submit three sets of WCRC approved paving plans to the Township upon County approval.
2. Private roads, when permitted, shall conform to the requirements of the Township Municipal Code, Chapter 47, Article II, Sections 47-26 thru 47-36.
3. Paving improvements for parking lots, internal roads and pedestrian facilities on private sites shall be designed in accordance with the requirements prescribed herein.
4. Concrete curb and gutter will be required for all private roadway construction and parking lot construction with the following exceptions:
 - a. Large lots of one acre or more for residential detached housing.
 - b. Industrial storage yards not used for regular road vehicle parking.
 - c. Where directly adjacent to a stormwater BMP where the applicant is proposing to sheet flow water and infiltrate.
 - d. Bituminous curb is not permitted.
5. Underground storm sewers, including edge drains for parking lots and roads, shall be designed and installed with all paving improvements which require concrete curb and gutter or asphalt curb. Where pavements are to be constructed over clay soils or other poorly drained soils and a granular sub-base is used, an approved sub-drainage system shall be installed.
6. Plan and profile views shall be provided for all proposed paving improvements. The plan and profile shall be presented on the same plan sheet and shall be vertically aligned. If possible, storm water management improvements shall be shown on the same plan sheet as the paving improvements.
 - a. The plans shall include typical cross section(s) showing dimensions, materials, type and thickness of the proposed paving improvements.
 - b. The following information shall be shown in the plan view of the proposed paving improvements:

- i. Existing right-of-way or road easement as well as the proposed right-of-way or road easement. A minimum 12-foot-wide easement for private franchise utilities shall be provided adjacent to each side of the proposed right-of-way or road easement.
 - ii. Centerline alignment, including curve data, stationing, edge of pavement and/or curb. Centerline and stationing are not required for parking lots.
 - iii. Location of existing and proposed topographic features, including utilities.
 - iv. Location of existing and proposed traffic control devices.
 - v. Location of existing and proposed street-light poles.
 - vi. Location of all proposed pedestrian facilities. Pathways may be required by the Township in lieu of sidewalks.
- c. The following information shall be shown in the profile view of the proposed paving improvements. Profiles are not required for proposed parking lots.
- i. Existing and proposed ground at the centerline (for rural roads) or top of curb (for urban roads).
 - ii. Percent of grade and vertical curve data.

Design Criteria

1. Cross Sections

- a. Dimensional widths and thickness of materials and associated road features shall be designed in accordance with the typical road cross sections prescribed by the WCRC. For public roads, the cross section requirements will be based on the functional class of the road as designated by the WCRC.
- b. For parking lots and internal roads at nonresidential sites, the cross section requirements will be based on the functional class of the public road serving the property. The minimum width for an internal drive shall be 26' measured from the back-of-curb to back-of-curb or edge of pavement to edge of pavement for non-curbed internal roads.
- c. Driveways will be defined as the paved area adjacent to a public or internal road serving no more than one residence, commercial or industrial establishment.
 - i. Single family residential driveways shall be designed according to the following criteria:
 - (1) Concrete driveways shall be a minimum of 6" thick between the back of curb or edge of pavement and the right-of-way or easement line. Concrete driveways outside the right-of-way or

easement shall be a minimum of 4" thick. All sidewalks within four feet of the back of curb shall be 6 inches thick.

- (2) Bituminous pavement driveways shall be a minimum of 3" thick over an aggregate base course having a minimum thickness of 6".
 - (3) Aggregate surface course driveways will only be permitted where the adjacent public or internal road does not have a paved surface. The aggregate surface course shall be a minimum of 6" thick within the right-of-way or easement and a minimum of 4" thick outside the right-of-way or easement.
- ii. Driveways to serve multi-family residences, commercial or industrial establishments shall be designed with the same cross section as the corresponding parking lot or internal road.
 - iii. Driveways within subdivisions must be paved if it is a platted subdivision or a site condominium. If it is a non platted subdivision the paving of the driveways will be determined by the township Planning Department on a case by case basis.
- d. Pedestrian facilities including the inclusion of an accessible route as required by the American's with Disabilities Act (ADA) shall be designed in accordance with the requirements prescribed by the ADA, WCRC, and MDOT.

2. Horizontal Alignment

- a. Horizontal alignment of pavement and associated road features shall be designed in accordance with the requirements prescribed by the WCRC.
- b. Internal roads shall be designed to accommodate the typical vehicles anticipated to use the site, including but not necessarily being limited to, delivery vans and trucks, fire department traffic, trash collection vehicles and school buses.
- c. Parking lots and off street loading and unloading areas shall be designed in accordance with the requirements prescribed by sections 2105 and 2106 of Appendix A of the Zoning of the Charter Township of Ypsilanti Code of Ordinances. If the proposed parking abuts a proposed sidewalk that will be 7 feet wide adjacent to a building, the parking space length may be reduced by 18 inches to allow for 2 foot of overhang by a parked vehicle.
- d. Driveways
 - i. Single family residential driveways shall be a minimum of 9' wide.
 - ii. Driveways to serve multi-family residences, commercial or industrial establishments shall be a minimum of 31' wide.
 - iii. Offset parking areas adjacent to driveways shall be configured with a 25' radius as shown in the standard details.

- e. Pedestrian facilities shall generally be located inside the right-of-way. Facilities located outside public right-of-way shall be located within a dedicated easement. Pedestrian facilities will be located within the right-of-way with the permission of the WCRC. The horizontal alignment of pedestrian facilities shall be as close to parallel as practical to the right-of-way or easement.
 - i. Concrete sidewalk shall be a minimum of 5' wide.
 - ii. Bituminous pavement bike paths shall be a minimum of 10' wide.

3. Vertical Alignment

- a. The vertical alignment of all public roads, internal roads and parking lots shall be designed in accordance with the requirements prescribed by the WCRC.
- b. Vertical alignment of driveways shall be designed in accordance with the requirements prescribed by the WCRC.
- c. Pedestrian facilities shall be designed to meet the requirements of the American with Disabilities Act, as amended.

4. Materials

a. Subgrade

- i. Subgrade material shall consist of loam, clay, sand, gravel or other similar material.
- ii. The finished subgrade surface shall be free of all topsoil, stones, stumps, organic matter, muck, peat and frost heave material.

b. Underdrainage

- i. Underdrain pipe shall be smooth plastic pipe or corrugated plastic tubing meeting Michigan Department of Transportation (MDOT) requirements.
- ii. Underdrain outlets shall be constructed of polyvinyl chloride (PVC) plastic pipe or corrugated steel pipe conforming to MDOT requirements.
- iii. Subbase materials shall conform to the requirements of MDOT Class II granular material compacted in place.

c. Aggregate Base Course

- i. Dense graded aggregate conforming to the requirements for MDOT Specifications 21A, 21AA or 22A, compacted in place.
- ii. The use of slag material will not be permitted.

- iii. The use of stabilized base course will be permitted. The type, thickness and mix must conform to MDOT requirements and must be approved by the Township Engineer.
 - iv. Bituminous pavement materials shall be in accordance with MDOT requirements as specified on the typical cross sections prescribed by the WCRC.
 - v. Concrete pavement materials shall be in accordance with MDOT requirements as specified on the typical cross sections prescribed by the WCRC.
- d. Pavement
- i. Driveway material shall be equal to or better than the road service the driveway is connecting to.

Construction Methods

1. Construction methods shall be in accordance with the plan details and the 2003 MDOT Standard Specifications for Construction.
2. Pavement Cuts
 - a. 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.
 - b. 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.
 - c. Saw cuts in concrete pavement shall not be nearer than 5' to a transverse joint, to the centerline of pavement, or to the edge of pavement or curb. No existing or replacement pavement shall be less than 5' 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.
 - d. If a square or block of sidewalk is cut, broken, or cracked, the entire square or block shall be removed and replaced.
3. Pavement Replacement, Temporary
 - a. All pavements removed in crossing and/or paralleling paved streets, alleys, drives and parking areas shall be temporarily replaced immediately following completion of backfilling operations. Temporary pavements for streets and alleys shall conform to the WCRC specifications for underground construction. Temporary pavement for driveways, including approaches and parking areas, shall consist of a minimum of 3" of compacted cold patch asphalt over a

minimum of 7” of compacted MDOT 22A aggregate base. All temporary pavements, including those constructed for streets, alleys, drives and parking areas, shall be maintained in good condition until the final pavement replacement is made.

4. Testing

- a. Density reports on private developments are required to be provided to the Township Engineer for sub base, base and paving course construction. Testing reports will also be required for all paving in the right-of-way for all applicable agencies.

5. Inspection

- a. The Township Engineer shall be contacted prior to the preparation and placement of any of the following materials for roadways and pedestrian facilities:
 - i. Subbase and underdrain
 - ii. Aggregate base course
 - iii. Paving course

VIII. GRADING AND EARTHWORK

General

1. All proposed developments should be graded such that storm water runoff will be intercepted within the boundaries of the site and conducted through a storm sewer system to an approved point of discharge.
2. Easements for surface drainage shall be dedicated and recorded.
3. For perimeter lots, the drainage easement width shall be 20' minimum, and for abutting lots with a common rear yard lot line, the easement width shall be at least 10' on each lot.
4. The following information must be shown in the plan view of the proposed grading:
 - a. Grading plans shall be drawn to a scale of 1" = 50' or larger.
 - b. The grading plans shall show the existing elevation topography either by contour method or grade point grid method.
 - c. High and low street grade points, slope direction (by arrow) and the location of all catch basins, inlets and drainage ditches shall be shown on the grading plan.
 - d. For subdivisions, a detail of the typical lot drainage pattern shall be shown on the grading plan with all grade control points identified. All grade point elevations shall be shown for each lot per Detail A or B illustrated in the standard details included in the Digital Appendix. This will include the finish floor (F.F.), or the foundation grade (F.G.) elevations, high point (grade break), drainage arrows and additional spot elevations to clarify site grading.
5. Plot plans shall be provided in accordance with the requirements prescribed in Appendix A.
6. A preconstruction meeting must be held and all applicable requirements fulfilled prior to any grading, earthwork, clearing or grubbing occurring on-site unless specific approval is granted from the Township Engineer and/or OCS Department. A SESC permit waiver may be permitted for earth changes of less than 225 square-feet.

Design Criteria

1. General
 - a. Grading plans shall take into account the desirable natural features and the character of the land, which must be preserved where possible.
 - b. No filling will be allowed in any areas of land which lie either wholly or in part within the flood plain of a river, stream, creek, or lake. Only a variance in the form of a permit from the Michigan Department of Environment, Great Lakes, and Energy may override this restriction.
 - c. Filling and grading shall not create a barrier causing entrapment of water on the adjacent lands of others.

- d. Retaining walls are discouraged. Any wall separating a grade differential exceeding 18-inches will require a special detail on the plan and require the review of a structural engineer.

2. Drainage Pattern

- a. Generally, all single-family lots shall be graded for front to rear drainage per Standard Detail A.
- b. Standard Detail B (rear to front drainage) will be allowed by the Township Engineer only where, due to existing topography, rear to front drainage would be very difficult to achieve or not feasible.
- c. Drainage patterns other than those shown in Details A and B may be used. All non-conforming lots with drainage patterns other than those in Standard Details A or B shall be noted on the grading plan. Each will be reviewed on a case-by-case basis.
- d. Large acreage parcels, outside of approved subdivisions/site condominiums, will be reviewed on an individual basis.

3. Slopes

- a. All areas within 10' of buildings shall slope away from the building at a minimum slope of 5%. The minimum slope for any other part of the site shall be 1%.
- b. A maximum slope of 4' horizontal to 1' vertical shall not be exceeded for terracing. The toe of slope shall be located outside of the rear and/or side lot line drainage easements.
- c. Swales
 - i. Each single-family lot shall be graded to drain away from the house to swales constructed along the lot lines.
 - ii. Swales shall discharge to a catch basin, roadway gutter, or other approved drainage course.
 - iii. The longitudinal slope along a rear or side yard drainage swale shall be not less than 1.5% or more than 6.0%.
 - iv. Plans may not include any structures, landscaping or other permanent objects within swales.
 - v. Bio-swales or Vegetated Swales proposed to promote groundwater infiltration are acceptable but must be designed in accordance with the current Low Impact Development Manual for Michigan (LID Manual for Michigan) and in conformance with the Washtenaw County Water Resources Commissioner's Office.
- d. Maximum distance from a high point to a drain outlet shall not exceed 250' or two lots, whichever is the lesser.
- e. In general, for streets with ditches and no curbs, the elevation of the front lot line shall be at least 6" above the centerline of the road.
- f. Driveway slope gradients shall not exceed 8%.
- g. Longitudinal sidewalk slopes shall not exceed 5%. All pedestrian facilities shall meet the requirements of ADA.

Materials

1. Materials used in earth excavations and/or embankment construction shall be in accordance with the plans and the 2003 Michigan Department of Transportation (MDOT) Standard Specifications for Construction.
2. Material placed in future building sites, roadways or other areas that may support structures shall be free of trees, stumps, topsoil or any other surplus or unsuitable materials.

Construction Methods

1. 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 dimensions as will give ample room for:

- a. Building the structures.
- b. Bracing, sheeting and supporting the sides of the excavation.
- c. Pumping and drainage of ground water and sewage which may be encountered.
- d. 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.

2. 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 Township's standard details, the width of a trench from the invert to a height 12" above the top of the pipe barrel shall be indicated as follows:

<u>Pipe Size</u>	<u>Maximum Trench Width</u>
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 such concrete cradling or other bedding as is approved by the Township Engineer shall be installed to support the added load of the backfill.

Where trench excavation is in granular material, the last 6" 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 4" below the final bedding material 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% 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 1' above the pipe, except that the bedding shall be exclusively pea gravel to the springline for pipe 36" and greater in diameter.

c. Amount of Trench Opening

Not more than 50' of trench shall be open at one time in advance of the pipe unless permitted by the Township 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 Township Engineer and will be based on requirements of the use of the street by the public. No more than 600' of street length shall be occupied at one time, and vehicle traffic through the street shall not be entirely stopped without permission of the WCRC and the Township Engineer.

After placement of the utility line, the trench shall be promptly backfilled in order to minimize the length of open trench and avoid any unsafe conditions.

3. Stone Refill

In locations where soil at the bottom of trench is unstable the trench shall be excavated (undercut) below the trench bottom and refilled with MDOT 6A crushed aggregate.

4. Excavation & Trench Dewatering

Any excavation or trench shall be maintained free of water during construction of any structures and/or pipelines.

Adequate precautions shall be taken 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. If ground water is discharged to a County Drain then a permit may be required by the Washtenaw County Water Resources Office.

Discharge from any dewatering operations shall have a suitable outlet and cause no 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 shall be 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.

5. Diverting Existing Sewers

Where existing sewers or drains are encountered during construction operations, 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 approved or directed by the Township Engineer.

6. Sheeting, Bracing & Shoring

Sheeting, bracing and shoring shall be provided where required to properly support the surfaces of excavations and protect the construction work, adjacent work, and workers. 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.

7. 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 item 9, Backfilling. MDOT Grade 30S concrete can be utilized where approved by the Township Engineer. Either granular backfill or concrete shall be brought to the spring line of the higher utility.

8. Tunneling Trees

Trees 8" in diameter or less will require a minimum tunnel length of 8'. Trees over 8" in diameter, measured 4' 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.

9. 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.

Trenches and/or other excavations shall be backfilled with suitable excavated material (not including gray or blue clay) replaced into the trench or excavation and compacted to not less than 95% 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 3%, the material shall be dried to meet the foregoing moisture content limitation or MDOT Class II Granular Material shall be provided. 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.

Compaction tests shall be conducted at all locations requiring granular backfill. Such tests shall be the responsibility of the applicant.

Any depression resulting from settlement of any backfill shall be brought to the proper grade and surface and made to match the adjacent surface.

b. Compaction

Backfill material shall be placed in layers not to exceed 12" in thickness unless approved by the Township Engineer.

Specified compaction shall be obtained with the use of a bulldozer, sheepfoot roller, mechanical tamper or other similar and effective equipment. Specified compaction means not less than 95% (not average 95%) of maximum unit weight when tested in accordance with current MDOT Specifications.

If excavated material is not suitable to obtain 95% minimum compaction, unsuitable materials shall be removed or granular materials shall be added, or both, to obtain 95% minimum compaction as specified.

c. Backfilling Trenches

i. 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 95% of maximum unit weight in layers not exceeding 12" in depth.

ii. 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 1' 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 Township 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 3' of edge of pavement. On road crossings, specified compaction shall extend 10' beyond the edge of pavement for paved roadways with gravel shoulders or shall extend 3' 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 4" below finished grade of the sidewalk with approved suitable excavated backfill or granular backfill and compacted to 95% maximum density.

Trenches not in paved streets, shoulders, traveled roadways, parking areas, driveways or under sidewalks, shall be backfilled from 1' above the top of the pipe up to the ground surface 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.

d. 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 inspected 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% of its design strength and approval of the Township has been obtained.

10. Disposal of Excavated Material

After all suitable excavated material has been used on site, all excess material shall be removed and disposed of properly.

All other excavated materials that are unsuitable for use as fill or backfill shall be disposed of properly. Unsuitable materials may include, but are not limited to, broken concrete, asphalt, rock, stone, and other related debris. The applicant shall be required to obtain proper disposal areas and permits.

Any agreements that the applicant makes with local residents concerning the placement of fill on private property shall be the sole responsibility of the applicant. Copies of such agreements shall be provided to the Township.

Placement of fill on private property may require that the property owner and/or the applicant obtain a grading permit or fill permit from the Township.

11. Contractor Safety Requirements

All construction operations shall be performed in accordance with OSHA and MiOSHA requirements.

The excavation and trenching operations shall be conducted in a manner that will provide safe working conditions for all persons on the site who may be affected by the construction operations. All construction operations shall be conducted in a manner that will protect adjacent property from damage.

Trench sides shall be either cut back to the slope as required 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. Design and installation of trench supporting systems shall be the responsibility of the applicant.

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, shall be employed at all times at the site of the work.

Excavated material, heavy equipment, backfill materials, sewer pipe, or other construction materials shall not be stored along or adjacent to the trench where they may impose too great a load on the earth and cause displacement or caving of the earth. A safe means of emergency exit shall be provided at all times from all trench excavations.

IX. SOIL EROSION AND SEDIMENTATION CONTROL

General

1. Soil erosion and sedimentation control measures shall be incorporated into the design and construction of all projects as specified by Ypsilanti Township Office of Community Standards (OCS) and/or the Michigan Department of Environment, Great Lakes, and Energy (EGLE). All projects shall be designed and constructed so as to minimize soil erosion and sedimentation impacts to the environment.
2. A permit must be obtained from either the Ypsilanti Township OCS and/or EGLE.
3. All proposed temporary and permanent soil erosion and sedimentation control measures shall be shown on the plans. All soil erosion control measures shall be identified in accordance with the Michigan Unified Keying System.
4. Cleaning and maintenance schedule listing annual budget and frequency of maintenance operations shall be indicated on the plans.

Design Criteria

1. Temporary and permanent soil erosion and sedimentation control measures shall be designed in accordance with the requirements of the WCSSED and/or EGLE. At a minimum, the following shall be provided for all project:
 - a. Silt fence;
 - b. Inlet filters;
 - c. Gravel tracking mats at any point of ingress or egress to a construction site to a length not less than 50 feet and where possible to a length of 100 feet.

Materials

1. Temporary soil erosion and sedimentation control measures shall be fabricated of the materials specified in the latest edition of the Best Management Practices (BMP) guidelines published by the EGLE and/or the Washtenaw County requirements.
2. Permanent soil erosion and sedimentation control measures shall be in accordance with the material requirements specified in other sections of above-mentioned standards.
3. The use of straw bales may only be permitted with written approval from the Township and otherwise will not be permitted in Ypsilanti Township.

Construction Methods

1. Soil erosion and sedimentation control measures shall be the first activity on site.
2. Temporary soil erosion and sedimentation control measures shall be installed and maintained as outlined in the latest edition of the BMP guidelines published by the EGLE.
3. Permanent soil erosion and sedimentation control measures shall be constructed and maintained in accordance with the cleaning and maintenance schedule shown on the approved soil erosion and sedimentation control plan and as described in the required permit.
4. All lots within approved residential subdivision/site condominiums shall have the disturbed ground stabilized with sod, seed, or other acceptable permanent soil erosion control measures prior to the issuance of the final certificate of occupancy. Inclement weather exceptions will be made from November 15th through June 15th as determined by the Ypsilanti Township CED.
5. A soil erosion and sedimentation control inspection escrow deposit must be made in an amount to be determined by the Township Planning Director, building Director or an authorized agent of the township. This deposit is required to conduct necessary inspections during the construction phase. If the escrow is depleted prior to the issuance of the final certificate of occupancy, then the escrow account must be replenished to a level determined by the Township.
6. Standard SESC details have been included in the Digital Appendix and should be included with plan sets. If special SESC provisions are being proposed or required, then special details and/or notes may be needed in addition to the standard details.

Appendix A

A-1: Site Plans

A-2: Plot Plans

A-3: Detailed Engineering Plans

A-4: SESC Plans

A-5: Record Drawings

A-6: Structural Reviews

Check List for Preliminary Site Plans

The following checklist is intended to serve as a guide for designers to review prior to submitting plans to the Township for review. While the checklist covers all major areas that will be reviewed by the Township's Engineer, the list is not all-inclusive, and the Township Engineer may comment on items not listed herein.

Topography

- A complete topographical survey is required for all proposed projects. A mete and bounds legal description of the project site shall be provided on the plans. Property lines shall be indicated by bearing and distance in the plan view. All existing easements shall also be shown on the plan view of the existing conditions.
- A minimum of two benchmarks are required. All benchmarks shall be clearly indicated on the plans. All elevations shall be to North American Vertical Datum 1988 (NAVD-88) and shall be in state plane coordinates.
- Existing offsite elevations must be given at a minimum of 50 feet and 100 feet abutting the entire perimeter of the site. Grades will be indicated at all property corners and along all property lines. On-site, intermittent elevations and/or defined contours (minimum contour interval of 2 feet) are required to establish the existing site drainage.
- Existing features shall be located and shown within 100' of the project. Existing features to be shown shall include, but may not necessarily be limited to the following items:
 - Ditches.
 - Culverts.
 - Water supply system, storm water management and/or sanitary sewer facilities, including inverts and casting elevations at all structures.
 - Gas, telephone, electric and cable television lines, including manholes and/or utility poles.
 - Pedestrian facilities.
 - Trees and other landmark vegetation.
 - All streams, lakes and/or county drains with names shown.
 - Existing buildings and permanent structures.
- Existing adjacent roads and existing right-of-way or easement lines shall be shown on the plans and shall extend across the entire site with grades shown on both sides of the road for:
 - Right-of-way or easement line.
 - Ditch centerline.
 - Top of bank.
 - Edge of shoulder.
 - Edge of pavement or top of curb.

- Crown or centerline.

Water Supply System

- Water infrastructure improvements specified in the Ypsilanti Community Utilities Authority (YCUA) Water System Master Plan may be required as part of the project. The applicant shall contact the Township Engineer to determine if any improvements called for in the YCUA Water Master Plan will be necessary.
- The minimum size water main allowed for use in the distribution system shall be 8" diameter. Water mains shall be looped. Where dead ends are unavoidable, the following must be met: all mains must end with a gate valve followed by a hydrant. Maximum allowable dead-end main lengths are:
 - 40' for 6" fire hydrant lead.
 - 600' for 8" main.
 - 1,000' for 12" main.
- Show water service and size; no private services allowed from 6" hydrant lead or water mains larger than 16" diameter.
- Where required, a minimum 15' wide easement must be shown on the plans. Where water main is adjacent to and parallel to the right-of-way, a water main easement must be extended across the entire frontage of the property.
- A 10' horizontal separation must be maintained between the water main and sanitary or storm sewers.
- Valve spacing:
 - Three valves to isolate any section of water main, four maximum;
 - No more than 800' of main out of service for 8" water mains, not more than ¼ mile of water main out of service for mains 12" and larger;
 - No more than 2 hydrants out of service;
 - No more than 24 single family units or 30 multiple units out of service;
- For major commercial and industrial developments, building service must be maintained from a looped system with valves located on either side of the building service.
- Fire hydrants shall be located to provide 250-foot radial coverage of all existing and proposed permanent structures.
- No parking within 10' of any hydrants.

Sanitary Sewer

- Sanitary sewer infrastructure improvements specified in the Ypsilanti Community Utilities Authority (YCUA) Sanitary Sewer Master Plan may be required as part of the project. The applicant shall contact the Township Engineer to determine if any improvements called for in the YCUA Sanitary Sewer Master Plan will be necessary.
- Preliminary design calculations shall be provided on the plans.
- Where required, a minimum 25' wide easement must be shown on the plans. For sanitary

sewers proposed to be more than 10' deep the minimum easement width shall be two times the proposed depth.

- Show building lead size and location as well as other proposed sewers.

Storm Water Management Systems

- Preliminary design calculations prepared in accordance with the Rules of the Washtenaw County Drain Commissioner (WCDC) Procedures and Design Criteria for Storm Water Management Systems, latest revision, shall be provided on the plans.
- Restricted discharge rates and/or improvements to downstream drainage courses may be required as prescribed by the Charter Township of Ypsilanti Storm Water Master Plan of 1994. The applicant shall contact the Township Engineer to determine what design criteria specified in the Storm Water Master Plan apply to the proposed project.
- Proposed collection points, system layout, sizes and outlets must be shown on the site plan. Also show preliminary invert elevations and top of casting elevations.
- Where required, a minimum 12' wide easement must be shown on the plans. For storm sewers proposed to be more than 6' deep the minimum easement width shall be two times the proposed depth.
- Alternative means of providing detention are discouraged, but will be considered on a "case by case" basis:
 - Oversized storm pipes.
 - Parking lot storage. When approved, the maximum depth of water stored in parking areas shall be 4".

Paving Improvements

- All roads must conform to the requirements prescribed in the Washtenaw County Road Commission (WCRC) Procedures and Guidelines for Developing Public Roads, latest revision.
- On-site Paving Requirements:
 - Pavement cross-section must be shown in accordance with Township requirements.
 - Bituminous pavements shall have a minimum slope of 1.0% and a maximum slope of 6.0%.
 - Concrete pavements shall have a minimum slope of 0.5% and a maximum slope of 6.0%.
- Minimum drive widths and parking lot dimensions per standard details.
- Sidewalks required along the frontage of all existing and proposed roads.
 - Located 1' inside the ultimate right-of-way line.
 - Barrier free ramps noted.
 - All structures, hydrants, poles, etc. noted and moved or adjusted as necessary.
 - Bike paths may be required in lieu of sidewalks along frontage of major roads.
- Applicable tuning templates shall be provided for the largest delivery vehicle.

Site Grading and Earthwork

- Sufficient proposed grades indicated to ensure that:
 - Drainage is adequately discharged offsite with proper detention.
 - No upstream drainage is restricted.
 - The site in general drains without standing water.
 - Elevation representing the finished grade and the first-floor grade must be indicated. Each elevation shall be clearly labeled as either finished grade or first floor grade.
- Proposed grading shall meet abutting property line elevations. A maximum slope of 1 vertical to 4 horizontal may be employed to meet existing grades at property lines. Grading along existing or proposed property lines shall be in accordance with the Rules of the Washtenaw County Drain Commissioner Procedures and Design Criteria for Storm Water Management Systems, latest revision.
- Easement from adjacent property owner will be required for any grading necessary on offsite property. All offsite easements required to complete the work shall be obtained prior to the start of construction.

Plot Plan Requirements

1. Preliminary Plot Plan

- a. A plot plan drawing shall be filed in accordance with an accurate boundary line survey showing to scale the size and location of all the new construction and all existing structures on the site and distances from lot lines. In addition, all existing significant natural features, including but not necessarily limited to trees and wetlands, as well as existing utilities and other surface features shall be shown on the preliminary plot plan.
- b. The preliminary plot plan shall also show the established street grades, proposed structures, existing structures, sidewalk and easement final grades and elevations at each lot corner and at all other grade change points.
- c. The proposed finish earth grades of the house and the finish earth grades of houses on adjacent lots must be shown.
- d. The ground water surface elevation shall be provided at a location within the proposed building envelope.
- e. All grades are to be in accordance with any subdivision or site condominium plans that have been previously approved for the property. If none are available, the preliminary plot plan will be reviewed using the existing and proposed elevations provided on the plot plan.
- f. Rear yard and side yard drainage swales shall be clearly indicated with grades shown at sufficient locations to provide for positive drainage away from the building and other structures. Channelization of drainage to an approved outlet shall also be shown. Direction arrows shall be provided showing proposed and existing drainage directions.
- g. The Chief Building Official and the Township Engineer are responsible for the review and approval of the preliminary plot plan grades before any building permit may be issued.

2. Building Grade Requirements

Subsequent to the issuance of a building permit and prior to the commencement of construction, the permit holder (or his authorized agent) shall set survey stakes in conformance with the approved plot plan.

3. Final Plot Plan/As-Builts

- a. Upon completion of the site, a final plot plan must be submitted for the site containing the following information:
 - i. The owner's name, address and telephone number
 - ii. The name, address, telephone and fax numbers for the engineer/surveyor.
 - iii. The engineer/surveyor's signature and seal.
- b. The following dimensions must be shown on the plot plan:
 - i. Property lines (all sides) including the bearing.
 - ii. All sides of the building foot-print (including decks).
 - iii. Driveways and sidewalks (label the material used for construction, i.e. – concrete, asphalt, gravel).

- iv. Water, sanitary and storm service leads. Dimension the leads from the building corners; dimension the water shut-off valve from the building corners.
 - v. Any utility facilities on site (utility poles, catch basins, manholes, etc) dimensioned to property lines.
- c. The following as-built elevations, referenced to the benchmarks provided on the approved detailed engineering plan, must be provided on the plot plans:
- i. First floor (basement elevation where a walk out basement is shown); garage floor, porch and/or deck.
 - ii. Lot corners.
 - iii. Ground elevation at the building corners.
 - iv. Centerline of the driveways at no more than 50 feet intervals; culvert crossings; edge of road.
 - v. Centerlines of swales and drainage ditches (at no more than 50' intervals) with high points noted.
 - vi. Inverts of drainage culvert ends; sanitary sewer lead at the property line.
 - vii. Rims of manholes, catch basins, and gate wells/boxes, hydrants and other utility structures.
 - viii. Show and label undisturbed wooded areas, wetlands, flood plains, etc.
 - ix. Note any variances obtained for site with respect to standard setbacks, etc.
4. Grading Certificate
- a. Upon completion of all proposed work shown on the approved plot plan, the permit holder (or his authorized agent) shall submit to the Chief Building Official a grading certificate indicating that all grading has been done and accomplished in accordance with the approved plot plan and the requirements contained herein.
 - b. The certification shall be on a form containing at least the following information when filed:
 - i. Building permit number
 - ii. Date permit was issued
 - iii. Plot plan number
 - iv. Date plot plan was approved by Chief Building Official
 - v. Description of property
 - vi. Date of survey
 - vii. Signature and seal of land surveyor or engineer registered and licensed in the State of Michigan.
 - viii. The grading certificate shall have attached to it a copy of the approved final plot plan with "as-built" elevations shown at grade points.
 - c. Final "as-built" grades shall be in substantial compliance with the approved plot plan with allowable tolerance of plus or minus 0.25 feet.
 - d. No final Certificate of Occupancy will be issued, and no building will be approved for occupancy until:

- i. The property has been graded in strict compliance with the approved plot plan.
 - ii. The grading certificate has been received, field verified and approved by the Chief Building Official.
 - iii. The site has been permanently stabilized in accordance with the Soil Erosion Control section.
- e. A temporary Certificate of Occupancy may be issued by the Chief Building Official upon the posting by the permit holder, or his authorized agent, of a cash bond or an irrevocable letter of credit in the sum of one thousand dollars (\$1,000). The bond will be released upon satisfactory completion of grading and the approval of a grading certificate.

Check List for Detailed Engineering Plans

The following checklist is intended to serve as a guide for designers to review prior to submitting plans to the Township for review. While the checklist covers all major areas that will be reviewed by the Township's Engineer, the list is not all-inclusive, and the Township Engineer may comment on items not listed herein.

General Requirements

- Submittal on 24" x 36" white paper having blue or black lines with a minimum horizontal scale of 1" = 50' and vertical of 1" = 5'. Other acceptable scales are 1" = 20'; 1" = 30' and 1" = 40'.
- General plan at 1" = 100' or 1" = 200' when size of site prohibits a single plan sheet. Show street names, units, utilities, pavement, site dimensions, phase lines, lot lines and lot numbers.
- A location map showing section number(s) and major thoroughfares in the project area shall be provided on the cover sheet of the plans.
- Lot number, parcel dimensions and adjoining rights-of-way shall be shown.
- Township standard notes and details must be attached to the plans. The Standard Notes and Details are included in the Digital Appendix.
- Plans must be signed and sealed by a professional engineer registered in the State of Michigan. All correspondence concerning the design of the site will be directed to the engineer whose seal appears on the plan.
- Name, address and phone number of the applicant and the design engineer must be shown on the plans.
- Legal description of property must be provided on the plans.
- Both existing and proposed utilities must be a minimum of 10' from existing or proposed buildings.
- North arrow, scale, and MISS DIG notice must be shown on the plans.
- The storm sewer, sanitary sewer and water main shall be shown on the same plan view. The landscaping plan shall be overlaid in light scale in for reference; plantings must not interfere with utilities.
- When more than 3 plan sheets are in a set, a cover sheet with an index shall be provided and each plan sheet shall include a title block providing a summary of the information presented on that sheet.
- Adequate space must be provided to allow for turning movements of vehicles including trucks and fire engines per AASHTO guidelines.
- Provide a minimum of 2 benchmarks. The benchmarks must be referenced to the North American Vertical Datum of 1988 (NAVD '88). All benchmark locations shall be clearly indicated on the plans.

Topography

- A complete topographical survey is required for all proposed projects. A metes and bounds legal description of the project site shall be provided on the plans. Property lines shall be indicated by bearing and distance in the plan view. All existing easements shall also be shown on the plan view of the existing conditions.
- A minimum of two benchmarks are required. All benchmarks shall be clearly indicated on the plans. All elevations shall be to North American Vertical Datum 1988 (NAVD-88).
- Existing offsite elevations must be given at a minimum of 50 feet and 100 feet abutting the

entire perimeter of the site. Grades will be indicated at all property corners and along all property lines. On-site, intermittent elevations and/or defined contours (minimum contour interval of 2 feet) are required to establish the existing site drainage.

- Existing features shall be located and shown within 100' of the project. Existing features to be shown shall include, but may not necessarily be limited to the following items:
 - Ditches.
 - Culverts.
 - Water supply system, storm water management and/or sanitary sewer facilities, including inverts and casting elevations at all structures.
 - Gas, telephone, electric and cable television lines, including manholes and/or utility poles.
 - Pedestrian facilities.
 - Trees and other landmark vegetation.
 - All streams, lakes and/or county drains with names shown.
 - Existing buildings and permanent structures.
- Existing adjacent roads and existing right-of-way or easement lines shall be shown on the plans and shall extend across the entire site with grades shown on both sides of the road for:
 - Right-of-way or easement line.
 - Ditch centerline.
 - Top of bank.
 - Edge of shoulder.
 - Edge of pavement or top of curb.
 - Crown or centerline.

Water Supply System

- Water distribution system improvements shall be designed in accordance with the requirements of the Michigan Safe Drinking Water Act, Act 399 of the Public Acts of 1976, as amended; as well as the latest revisions of the standards prescribed by the American Water Works Association (AWWA), the Detroit Water and Sewerage Department (DWSD), and as specified herein.
- Water infrastructure improvements specified in the Ypsilanti Community Utilities Authority (YCUA) Water Master Plan may be required as part of the project. The applicant shall contact the YCUA Engineer to determine if any improvements called for in the YCUA Water System Master Plan will be necessary.
- Plan and profile views shall be provided for all proposed water main including fire hydrant leads. The plan and profile shall be presented on the same plan sheet and shall be vertically oriented.
 - A water main quantity list shall be provided on the cover sheet of the detailed engineering plans. The quantity list shall be delineated by existing or proposed road right-of-way or easement.
 - The following information must be shown in the plan view of the proposed water supply

system improvements:

- Type, class and size of pipe.
- Length between fittings and/or appurtenances.
- Water service locations and sizes.
- Where required, a dedicated water main easement must be shown on the plans. The easement width shall be the greater of the following: Twice the depth of bury plus the pipe diameter plus 2' (rounded to the next largest full foot), or 15'. Where water main is adjacent to and parallel to the right-of-way, a water main easement must be extended across the entire frontage of the property.
- The following information must be shown in the profile view of the proposed water supply system improvements:
 - Type, class and size of pipe.
 - Length between fittings and/or appurtenances.
 - Top of casting elevation on valve wells and/or boxes as well as the finished grade for fire hydrants.
 - Crossing of all existing and proposed utilities, including leads.
 - Granular backfill, trench details, special bedding, bores and/or other special construction methods.
 - Existing and proposed ground elevations.
- Where public water main construction is proposed, the YCUA standard water main detail sheets must accompany the plans. The standard details are included in the Digital Appendix.
- Water Main
 - The minimum size water main allowed for use in the distribution system shall be 8" diameter. Other allowable sizes for use in the distribution system are 12" and 16". A 12" water main may be considered as minimum for internal transmission on industrial sites, major streets, collector streets and elsewhere as design dictates. Water mains larger than 16" in diameter are considered transmission mains.
 - Water supply systems shall be designed to provide service from a double source of supply ("looped main"), or to be provided service by a double source of supply in the future when adjacent properties are developed with the approval of the Township Engineer.
 - Terminal dead end water mains with domestic service connections are discouraged and will not be permitted without the written approval of the Township Engineer. Where terminal dead-end water mains are permitted, a gate valve and fire hydrant shall be provided at the terminus of the main. The following are the maximum allowable lengths for terminal dead-end water mains:
 - 40' for 6" fire hydrant lead.
 - 600' for 8" water distribution mains (residential areas only).
 - 1,000' for 12" and larger water distribution mains.
 - Water main shall be designed and constructed with a minimum 5½' depth of cover over the top of pipe as measured from the proposed final grade. A minimum 18" vertical

clearance shall be maintained between water mains and other underground utilities. Where the vertical alignment of the water main must be deflected in order to achieve the required vertical clearance, the length of the deeper main shall be kept to a minimum and standard 45° bends shall be used to affect the necessary deflection.

- A minimum 10' horizontal separation shall be maintained between water main and sanitary sewers and/or storm sewers. A minimum 5' horizontal separation shall be provided between water mains and other underground utilities and/or structures.

Valves

- Water supply system improvements shall be designed to include adequate valves to properly isolate sections of water main without adversely impacting significant portions of the system. Valves on water mains 16" and smaller shall be gate valves and valves on water mains larger than 16" shall be butterfly valves.

- The connection of proposed water mains to existing water mains shall be accomplished by means of a tapping sleeve and valve unless the connection can be made without interrupting service on the existing water main or if the existing water main is 16" diameter or larger.

- Valves shall be located so that:

- Three valves to isolate any section of water main, four maximum.
- No more than 800' of water main out of service for 8" water mains; not more than ¼ mile of water main out of service for mains 12" and larger.
- No more than 2 fire hydrants out of service.
- No more than 24 single family units or 30 multiple family units out of service.

- Valves shall generally be located such that they will not be in street pavements, sidewalks or driveways.

- All valves shall be installed in a three-piece, adjustable valve box with the following exception. Valves will be installed in gate wells where the valve will be located within existing or proposed pavement, or the valve is located on a water main larger than 16" in diameter, or the valve is part of a tapping valve connecting to a concrete water main requiring the use of a saddle sleeve.

Fire Hydrants

- Generally, fire hydrants shall be spaced such that not more than 250' of fire hose would be required to reach the farthest corner of any proposed building. Spacing of hydrants around multiple, commercial or manufacturing establishments shall be considered on an individual basis and shall be determined by consultation with the Township Engineer and the Township's Fire Marshal.

Domestic Service Connections

- No service connections shall be permitted from 6" fire hydrant leads or transmission mains.

Sanitary Sewer

- Sanitary sewer infrastructure improvements specified in the Ypsilanti Community Utilities Authority (YCUA) Sanitary sewer system improvements shall be designed in accordance with the requirements of Part 41 of Act 451 of the Public Acts of 1994, as amended, the most recent revision of the Recommended Standards for Sewage Works by the Great

Lakes-Upper Mississippi River Board of State Sanitary Engineers (commonly known as the “Ten States Standards”) and as prescribed herein.

- Public sanitary sewers shall be provided where multiple lots or parcels will be served either presently or in the future. Public sanitary sewer system extensions will require the review and approval of the Township Engineer, YCUA and EGLE. Public sanitary sewers are required when two or more connections are made to the same sewer. In most instances, including multiple unit developments, the sewer may have to be public even though the project has one owner. YCUA approval will be required for private services serving more than one building. The extension of the sanitary sewers will generally be required across the entire frontage of the site.
- Sanitary sewer improvements specified in the Ypsilanti Community Utilities Authority (YCUA) Sanitary Sewer Master Plan may be required as part of the project. The applicant shall contact the Township Engineer to determine if any improvements called for in the YCUA Sanitary Sewer Master Plan will be necessary.
- Plan and profile views shall be provided for all proposed sanitary sewer system improvements including force mains. The plan and profile shall be presented on the same plan sheet and shall be vertically oriented.
 - Sanitary sewer design flow computations, the sanitary sewer district map and a sanitary sewer quantity list shall be provided on the cover sheet of the detailed engineering plans. The design flow computations and sanitary sewer district map shall include both current and future service populations and areas. The quantity list shall be delineated by existing or proposed road right-of-way or easement.
 - The following information must be shown in the plan view of the proposed sanitary sewer system improvements:
 - Size, material and type of pipe.
 - Length between structures.
 - Slope of sewer between structures.
 - Where required, a dedicated sanitary sewer easement must be shown on the plans. The sanitary sewer easement width shall be either twice the depth of the pipe plus the diameter of the pipe plus 2' (rounded up to the nearest whole foot), or 25', whichever is greater.
 - Top of casting and invert elevations at each structure.
 - Progressive numbering system on structures.
 - The following information must be shown in the profile view of the proposed sanitary sewer system improvements:
 - Existing and proposed ground elevations.
 - Length, type, class, size and slope of pipe between structures.
 - Top of casting and all sewer inverts at all structures.
 - All utility crossings.
 - Special backfill areas, i.e. sand.
 - Provisions for infiltration testing.
 - Progressive numbering system on structures.

- Adjacent existing or proposed utilities plotted where parallel.
- Where public sewer construction is proposed, the YCUA standard sanitary sewer detail sheets must accompany the plans. The standard details are included in the Digital Appendix.
- Capacity Design
 - Sewer design flow computations shall be submitted to the Township Engineer for approval with a map delineating the area to be serviced. Major roads and natural features (rivers, lakes, streams) shall be included on the map. Present and future development phases with acreages and contributing offsite areas shall be shown with the number of lots included.
 - For design purposes, population in the tributary area shall be based on a minimum of 3½ persons per single family residence, also referred to as an equivalent residential unit (ERU). The basis of design calculations shall include a tabulation of the usage types and the conversion of the various uses into ERUs. The adopted unit factors as included in the YCUA Trunkline and Transmission Line Service Charge ordinance shall be used to convert different usage types to ERUs.
 - Sanitary sewers shall be designed on the basis of an average daily flow of 100 gallons per capita per day. The sanitary sewer capacity shall be designed on a peak design flow using the peaking factor as prescribed by the Ten States Standards.
 - All sanitary sewers shall be designed to provide mean velocities, when flowing full, of not less than 2.0 feet per second, based on Manning's formula using an "n" value of 0.013. The maximum design velocity for sanitary sewers shall be 10.0 feet per second with the pipe flowing full.
 - The minimum size for sanitary sewers shall be 10" diameter, with the terminal run of 10" sewer at a uniform grade of not less than 1.0% between structures. On all other 10" sanitary sewer runs, the minimum grade shall be 0.30% between structures.
- Sanitary Sewer Location
 - Sanitary sewers shall be located to provide unrestricted access for inspection and maintenance operations.
 - A minimum horizontal separation of 10' shall be provided between sanitary sewers and water mains. If it is impossible to obtain proper horizontal and vertical separation as described above, both the water main and sewer must be constructed of slip-on or mechanical joint pipe complying with public water supply design standards of the agency. It must also be pressure tested to 150 psi to assure water-tightness before backfilling. In addition, adequate horizontal separation shall be provided between sanitary sewers and all other underground utilities to allow a 1:1 trench slope from the bottom of the deeper utility, which will not undermine any shallower utility.
- Depth of Sewers
 - The minimum depth of cover over the top of the sanitary sewer pipe shall be 4' as measured from the proposed ground elevation.
 - Sanitary sewers shall be a minimum of 10' deep when fronting residential parcels to be directly connected to the sewer. Deep setbacks or unusual topographic conditions may require more depth.
 - A minimum vertical separation of 18" shall be provided between sanitary sewers and

water mains. In addition, a minimum vertical separation of 12" shall be provided between sanitary sewers and other underground utilities unless otherwise specified by the agency having jurisdiction over the other utility.

Manholes

Manholes shall be installed at intervals not to exceed 300', or at the following locations:

- The upstream terminus of a sanitary sewer run.
- All changes in pipe grade.
- All changes in pipe size.
- All changes in horizontal alignment.
- All sewer junctions.

Manholes for sewers 21" and smaller shall have a minimum diameter of 48". Manholes for sewers larger than 21" shall have a minimum diameter of 60". Larger diameter manholes may be required depending on such factors as the number of sewers at a junction or significant changes in horizontal alignment.

External drop connections will be required where the invert of the outlet sanitary sewer is 18" or more below the inlet pipe invert. Internal drop connections will not be allowed.

The 0.8 depth flow line of sewers shall be matched at structures when changing sizes of sewers.

An allowance of 0.10' in grade shall be made for loss of head through a manhole where sewer alignment is deflected 30° or more.

Building Sewers

Building sewers included with sewer construction.

- For each parcel along the route of a sanitary sewer, a building lead shall be constructed from the sanitary sewer to a minimum of 10' beyond the property line. This applies to any parcels in the sanitary sewer service design area.

The minimum grade for building sewers shall be 1% for 6" sewers and 2% for 4" sewers.

Storm Water Management Systems

Storm water management systems shall be designed in accordance with the Rules of the Washtenaw County Water Resources Commissioner (WCWRC) Procedures and Design Criteria for Storm Water Management Systems, latest revision. Projects in the following watersheds will require the review of EGLE due to thermal/environmental sensitivity: Chicking Ditch and Paint Creek watersheds.

Restricted discharge rates and/or improvements to downstream drainage courses may be required as prescribed by the Charter Township of Ypsilanti Storm Water Master Plan of 1994. The applicant shall contact the Township Engineer to determine what design criteria specified in the Storm Water Master Plan apply to the proposed project.

Where an approved point of discharge is not available on the site, the applicant shall make such offsite drainage improvements as are necessary to provide positive drainage to an approved outlet, as determined by the Township Engineer and/or the WCWRC. Such improvements shall be located in an easement secured by the applicant. The easement form and width of the easement shall be subject to Township approval.

Plan and profile views shall be provided for all proposed storm water management system

improvements. The plan and profile shall be presented on the same plan sheet and shall be vertically oriented.

- Design calculations for all components of storm water management systems, including but not necessarily limited to storm sewers, channels and detention facilities, shall be provided on the plans.
- A drainage area map shall be included on the plans. The map shall define the areas tributary to catch basins and inlets (including upstream and offsite areas). The design calculations shall include the determination of the weighted runoff coefficients for the areas tributary to each specific inlet or outlet. The design calculations shall also include justification for the initial time of concentration used for the storm sewer design calculations.
- The following information must be shown in the plan view of the proposed storm sewer system improvements:
 - Size, material and type of pipe.
 - Length between structures.
 - Slope of sewer between structures.
 - Where required, a dedicated storm water easement must be shown on the plans. The easement width shall be in accordance with the following:
 - 12' for open drainage along rear and side property lines.
 - A minimum of 20' for enclosed storm drains.
 - A minimum of 30' for open swales (cross lot drainage).
 - Top of casting and all invert elevations at each structure.
 - Progressive numbering system on structures.
- The following information must be shown in the profile view of the proposed storm sewer system improvements:
 - Existing and proposed ground elevations.
 - Size, material and type of pipe.
 - Length between structures.
 - Slope of sewer between structures.
 - Hydraulic gradient between structures.
 - Top of casting and all invert elevations at each structure.
 - All utility crossings.
 - Special backfill areas, i.e. sand.
 - Progressive numbering system.
 - Adjacent existing or proposed utilities plotted where parallel.
- Where public sewer construction is proposed, the Charter Township of Ypsilanti standard storm sewer detail sheets must accompany the plans. The standard details

are included in the Digital Appendix.

- Components of storm water management systems shall be designed in accordance with the requirements of the WCWRC, as noted previously. The WCWRC design criteria shall apply to all storm water management system components, regardless of whether the facilities will be publicly dedicated or privately maintained at the completion of the project.

Paving Improvements

- All roads proposed for construction in Ypsilanti Township shall be public roads under the jurisdiction of the Washtenaw County Road Commission (WCRC) unless otherwise permitted by Township ordinance. Plans for such roads and/or accompanying sidewalks / bike paths shall be prepared in accordance with WCRC "Procedures and Guidelines For Developing Public Roads", latest revision. In addition to any submittals required for WCRC approval, plans shall also be submitted to the Charter Township of Ypsilanti for review of the proposed road improvements in relation to other existing and proposed facilities. The applicant shall submit three sets of WCRC approved paving plans to the Township upon County approval.
- Paving improvements for parking lots, internal roads and pedestrian facilities on private sites shall be designed in accordance with the requirements prescribed herein.
- Concrete curb and gutter will be required for all private roadway construction and parking lot construction with the following exceptions:
 - Large lots of one acre or more for residential detached housing.
 - Industrial storage yards not used for regular road vehicle parking.
 - Bituminous curb may be substituted for concrete curb and gutter in commercial parking lot construction.
- Underground storm sewers, including edge drains for parking lots and roads, shall be designed and installed with all paving improvements which require concrete curb and gutter or asphalt curb. Where pavements are to be constructed over clay soils or other poorly drained soils and a granular subbase is used, an approved sub-drainage system shall be installed.
- Plan and profile views shall be provided for all proposed paving improvements. The plan and profile shall be presented on the same plan sheet and shall be vertically aligned. If possible, storm water management improvements shall be shown on the same plan sheet as the paving improvements.
 - The plans shall include typical cross section(s) showing dimensions, materials, type and thickness of the proposed paving improvements.
 - The following information shall be shown in the plan view of the proposed paving improvements.
 - Existing right-of-way or road easement as well as the proposed right-of-way or road easement. A minimum 12 foot wide easement for private utilities shall be provided adjacent to each side of the proposed right-of-way or road easement.
 - Centerline alignment, including curve data, stationing, edge of pavement and/or curb. Centerline and stationing are not required for parking lots.
 - Location of existing and proposed topographic features, including utilities.
 - Location of existing and proposed traffic control devices.
 - Location of existing and proposed street-light poles.

- Location of all proposed pedestrian facilities. Bike paths may be required by the Township in lieu of sidewalks.
- The following information shall be shown in the profile view of the proposed paving improvements. Profiles are not required for proposed parking lots.
 - Existing and proposed ground at the centerline (for rural roads) or top of curb (for urban roads).
 - Percent of grade and vertical curve data.
- Cross Sections
 - Dimensional widths and thickness of materials and associated road features shall be designed in accordance with the typical road cross sections prescribed by the WCRC. For public roads, the cross-section requirements will be based on the functional class of the road as designated by the WCRC.
 - For parking lots and internal roads at nonresidential sites, the cross-section requirements will be based on the functional class of the public road serving the property. The minimum width for an internal drive shall be 26' measured from the back-of-curb to back-of-curb or edge of pavement to edge of pavement for non-curbed internal roads.
 - Pedestrian facilities shall be designed in accordance with the requirements prescribed by the WCRC.
- Horizontal Alignment
 - Horizontal alignment of pavement and associated road features shall be designed in accordance with the requirements prescribed by the WCRC.
 - Pedestrian facilities shall generally be located outside the right-of-way in a dedicated easement. Pedestrian facilities will be located within the right-of-way with the permission of the WCRC. The horizontal alignment of pedestrian facilities shall be as close to parallel as practical to the right-of-way or easement.
- Vertical Alignment
 - The vertical alignment of all public roads, internal roads and parking lots shall be designed in accordance with the requirements prescribed by the WCRC.

Site Grading and Earthwork

- All proposed developments should be graded such that storm water runoff will be intercepted within the boundaries of the site and conducted through a storm sewer system to an approved point of discharge.
- Easements for surface drainage shall be dedicated and recorded.
- For perimeter lots, the drainage easement width shall be 20' minimum, and for abutting lots with a common rear yard lot line, the easement width shall be at least 10' on each lot.
- The following information must be shown in the plan view of the proposed grading:
 - Grading plans shall be drawn to a scale of 1" = 50' or larger.
 - The grading plans shall show the existing elevation topography either by contour method or grade point grid method.
 - High and low street grade points, slope direction (by arrow) and the location of all catch

basins, inlets and drainage ditches shall be shown on the grading plan.

- A detail of the typical lot drainage pattern shall be shown on the grading plan with all grade control points identified. All grade point elevations shall be shown for each lot which includes the first floor (F.F.), or the foundation grade (F.G.) elevations, high point (grade break), drainage arrows and additional spot elevations to clarify site grading.

Soil Erosion & Sedimentation Control

- Soil erosion and sedimentation control measures shall be incorporated into the design and construction of all projects as specified by Chapter 24, Article VI – “Erosion Control”, of the Charter Township of Ypsilanti Code of Ordinances, as amended. All projects shall be designed and constructed to minimize soil erosion and sedimentation impacts to the environment.
- All proposed temporary and permanent soil erosion and sedimentation control measures shall be shown on the plans. All soil erosion control measures shall be identified in accordance with the Michigan Unified Keying System.

Check List for Soil Erosion and Sedimentation Control Plans

The following checklist is intended to serve as a guide for designers to review prior to submitting plans to the Township for review. While the checklist covers all major areas that will be reviewed by the Township's Engineer, the list is not all-inclusive, and the Township Engineer or Township Reviewer may comment on items not listed herein.

- The principles and practices of proper soil erosion and sediment control are effectively utilized with the proposed plan.
- The soil erosion and sediment control plan is an independent plan sheet that clearly shows all soil erosion and sediment control measures.
- Contact information for the landowner, developer, and petitioner is provided.
- Legal description and boundary line survey of the site on which the work is to be performed.
- Vicinity map showing the adjacent properties within 500' of the site.
- Plans are drawn at a scale that is standard for engineering drawings.
- Topography map with existing contours, shown at maximum one-foot intervals, that accurately shows existing natural drainage patterns.
- A description of soils located on-site as defined by the Hydrological Soil Groups for Washtenaw County. A more detailed soil investigation report may be required by the Community and Economic Development Department.
- The location of any structure located on-site or within 50' of the site boundary line.
- Location of all existing and proposed on-site drainage facilities, including ditches, catch basins, and detention/retention facilities.
- An outline of all existing natural woodland features located on-site, with an indication of whether these natural features are to be protected or removed during the construction process.
- All lakes, streams, wetlands, and county regulated drains within 500' of any earth changes clearly shown and identified on the plans.
- Drainage arrows and proposed contours showing the drainage patterns for the proposed earth disturbance.
- Identification of the ultimate drainage outlet.
- A map showing the total drainage area and calculations providing the estimated runoff to be generated by the site.
- The location and limits of all proposed earth disturbances and soil stock piles.
- Location and type of all proposed erosion and sediment control measures shown graphically on the plans.
- Location of all existing and proposed on-site drainage facilities, including ditches, catch basins, and detention/retention facilities.
- Construction and installation details of all erosion and sediment control items.
- The scheduling and sequencing of all construction activities and soil erosion control measures for the project.
- A maintenance agreement, which includes maintenance tasks, budget, and schedules, for all permanent erosion and sediment control items. The person(s) or organization responsible for the maintenance program shall be included.



JOB NAME: _____ REVIEWED BY: _____

JOB NUMBER: _____ DATE REVIEWED: _____

YPSILANTI TOWNSHIP RECORD PLAN REQUIREMENT CHECKLIST

Print Date: _____

This checklist should be completed, signed & sealed and submitted along with the Record Drawings.

*Note: Tie down measurements and top of casting elevations to all utility structures or building corners will also be the responsibility of the engineer providing the record drawings.
The use of coordinates alone to locate structures is not acceptable.*

The Orchard, Hiltz & McCliment, Inc project number must be printed in the lower right hand corner of all plan sheets.

SANITARY SEWER

I. PLAN VIEW

	[NEED]	[O.K.]	
A.	[]	[]	Lengths between manholes
B.	[]	[]	Size of pipe
C.	[]	[]	Length & Location of casing pipe
D.	[]	[]	Ties to manholes
E.	[]	[]	Type & class of pipe & joint ("O" ring, slip, solvent weld, etc.)
F.	[]	[]	T/casting grades
G.	[]	[]	Ties to wye locations
H.	[]	[]	Permit numbers (County & EGLE)
I.	[]	[]	Manhole numbering (sequential)
J.	[]	[]	Show all sanitary sewer easements on plans
K.	[]	[]	Provide copies of all sanitary sewer easements

II. PROFILE VIEW (REQUIRED FOR ALL PIPES)

	[NEED]	[O.K.]	
A.	[]	[]	Lengths between manholes
B.	[]	[]	Size of pipe
C.	[]	[]	Lengths of casing pipe
D.	[]	[]	Depth of wye & riser
E.	[]	[]	Invert grades
F.	[]	[]	Type & class of pipe & joint ("O" ring, slip, solvent weld, etc.)
G.	[]	[]	T/casting grades
H.	[]	[]	Wye locations (tied to permanent structures, property corners)
I.	[]	[]	Percent slope between manholes
J.	[]	[]	Manhole numbering (sequential)

STORM SEWER

I. PLAN VIEW

	[NEED]	[O.K.]	
A.	[]	[]	Lengths between manholes/catch basins/inlets
B.	[]	[]	Size of pipe
C.	[]	[]	Ties to manholes/catch basins/inlets
D.	[]	[]	Type & class of pipe & joint
E.	[]	[]	T/casting grades
F.	[]	[]	Structure numbering (sequential)
G.	[]	[]	Special structures (low head, 5' dia., 6' dia., 2' sump, etc.)
H.	[]	[]	Show all easements for storm sewer on plans
I.	[]	[]	Provide copies of all storm sewer easements

II. PROFILE VIEW (REQUIRED FOR PIPE 12" & LARGER)

	[NEED]	[O.K.]	
A.	[]	[]	Lengths between manholes
B.	[]	[]	Size of pipe
C.	[]	[]	Type & class of pipe & joint
D.	[]	[]	Invert grades
E.	[]	[]	T/casting grades
F.	[]	[]	Structure numbering (sequential)
G.	[]	[]	Percent slope between manholes

WATER MAIN

I. PLAN VIEW

	[NEED]	[O.K.]	
A.	[]	[]	Lengths between gate valve & wells, hydrants and fittings
B.	[]	[]	Size of pipe
C.	[]	[]	Ties to gate valve & wells, hydrants and fittings
D.	[]	[]	Ties to hydrants
E.	[]	[]	Ties to stop boxes
F.	[]	[]	Ties to building or offsets to pipe
G.	[]	[]	Offset of pipe from building/property line (if parallel).
H.	[]	[]	Type and class of pipe
I.	[]	[]	Finish grade of hydrants
J.	[]	[]	T/Casting grades
K.	[]	[]	Horizontal bend locations
L.	[]	[]	Location of thrust blocks & types of restraints
M.	[]	[]	Sequentially numbered G.V.W. & Valve Boxes
N.	[]	[]	Permit numbers (County & EGLE)
O.	[]	[]	Manufacturer of hydrant
P.	[]	[]	Show all water main easements on plan
Q.	[]	[]	Provide copies of all water main easements

WATER MAIN (continued)

II. PROFILE VIEW

	[NEED]	[O.K.]	
A.	[]	[]	Size of pipe
B.	[]	[]	Type and class of pipe
C.	[]	[]	G.V & Valve Box location
D.	[]	[]	Hydrant location (identify special structures such as blow off)
E.	[]	[]	Air relief valves/blow off valve locations
F.	[]	[]	Vertical bend locations

PAVEMENT

I. Width and station of pavement (measured from centerline)

	[NEED]	[O.K.]	
A.	[]	[]	At end of radius at intersection
B.	[]	[]	At beginning of taper
C.	[]	[]	At end of taper
D.	[]	[]	Any changes in alignment
E.	[]	[]	Radius @ intersection
F.	[]	[]	Right-of-way survey data

II. Drives

	[NEED]	[O.K.]	
A.	[]	[]	location
B.	[]	[]	Width
C.	[]	[]	Radius

III. Sidewalk

	[NEED]	[O.K.]	
A.	[]	[]	Location
B.	[]	[]	Width/Material
C.	[]	[]	Changes in alignment
D.	[]	[]	Ramps per ADA requirements
E.	[]	[]	Provide original recorded copies of all easements for bike path and/or sidewalk

GRADING

	[NEED]	[O.K.]	
A.	[]	[]	Slopes of swales/ditches field verified (50' centerline spot elevations)
B.	[]	[]	Detention basin sized/located according to approved plan (field verified)
C.	[]	[]	Side slopes of pond/berms field verified
D.	[]	[]	Provide original recorded copies of all easements for grading & drainage

DIGITAL VERIFICATION

	[NEED]	[O.K.]	
A.	[]	[]	PDF's of all applicable Plan Sheets
B.	[]	[]	AutoCAD version of Construction Drawings with xref files
C.	[]	[]	DWG Base File in State Plane Coordinates

Revisions Needed

No Revisions Needed

A Guide for Structure Reviews

In an effort to develop consistent and uniform criteria for structural reviews for private developments and site plans for municipal clients, we have developed the following submittal guidelines. Generally, the review will be based on the following information, however additional data, calculations, and information may be requested to provide for a more extensive review. Any missing items may be grounds for a request for re-submittal.

Contract construction drawings (24" x 36") bearing the seal and signature of an engineer licensed in the state of Michigan shall be submitted to the Municipality/City/Village, etc. The name of the person/company responsible for the project and the estimate of cost for the structure should accompany the plan. The construction documents, as a minimum, shall have the following data noted or referenced on the drawings:

Concrete Walls/Structures

- Clearly identified location of structure in site (plan view) with a location map (200 scale or equivalent)
- Top and bottom of wall elevation (plan view)
- Finished grades adjacent to the structure
- Grading plan corresponds to proposed structure
- Minimum and maximum wall height (cross section)
- Notes identifying or referencing material types and specifications
- Design loads including vehicular impact and surcharge loadings where applicable
- Structural dimensions and footing depth
- Wall and footing thickness
- Steel (reinforcing) grade, cover and spacing
- Bearing pressures (noted or referenced) and soil bearing capacities

- Openings in walls
- Protective guard requirements (required within two feet of pedestrians)
- Drainage requirements
- Filter wrapped drain tile and outlets specified
- Utility conflicts – noted with owner contact information
- Soil boring information & Geotechnical analysis

Block & Timber Retaining Walls

- All of the above except steel reinforcing data
- Segmental wall dimensions and soil reinforcing (if applicable)
- Manufacturer specifications (Block only) – compare to plans
- Geo-grid length noted, dimensioned and labeled on plans
- Embedment depth
- Boulder wall not exceeding four feet in height

In all cases, a signed and sealed letter from the engineer of record certifying that structures have been designed in accordance with applicable structural design codes with the codes identified; that all applicable safety factors, standards and codes (identify safety factors) have been met or exceeded; and that the soil conditions have been reviewed by a qualified geotechnical engineer.

Appendix B

B-1: Standard Detail Sheets

B-2: Sample CAD Layering File

**Ypsilanti Community Utilities Authority
Standards
For submitting
Digital Record Drawings**



Prepared by Orchard, Hiltz & McCliment, Inc.

The following digital submission specifications are being provided as minimum requirements and guidelines for consultants and developers reference. Should you have any questions or comments please contact your community representative.

A. Digital format of CAD files

The acceptable digital format for record drawing files shall be in AutoCAD format according to the following specifications:

- AutoCAD version 2015 or later
- Layer naming (shown in Table A) is to remain unaltered
- All polygons must be closed
- Lines shall not be unnecessarily segmented
- Intersecting lines segments must have common end points

B. Layering scheme

Key mapping features shall be stored on unique CAD layers. Related text shall be included with each layer (i.e., storm pipes on a single layer and storm pipe annotation on a separate single layer). See “Table A” for layer names and descriptions. Submitted drawings will go through a quality check and the layers will be verified. Drawings found not to comply will be modified by the Township, YCUA or the Township’s engineer to bring them in compliance with the layering standards. Any submittals requiring modification will result in an additional fee to the applicant. Submittals needing substantial modifications will result in the rejection of the digital file.

C. Coordinate System

All drawings shall contain adequate geodetic reference to Michigan South State Plane NAD 83. Units must be described as being international feet.

Drawings will conform to having one of the following references:

- (a) A drawing will reference a section corner/quarter-corner with distance and bearing data relating this point to the site plan.
- (b) A minimum of two (2) drawing locations will be identified with NAD83 coordinates established by field survey techniques (i.e., GPS or total station). Geographic coordinates shall appear in the drawing as text of a readable size and shall be in either Michigan South State Plane NAD83 or Geographic coordinates of sufficient resolution to derive state-plane coordinates within 1/10 of a foot.

D. Media for delivery

File transfer media shall be one of the following options:

- CDROM, CD-R or DVD
- Electronic (Internet) file transfer, FTP or email

CADD/GIS Standard Naming Convention

Description	Layer name
Annotations	
all chart lines and text*	a_chart
day stamp	a_daystamp
all legend lines*	a_legend
all location map lines and text*	a_locmap
match line	a_matchline
match line text	a_matchline_txt
north arrow	a_north
drawing notes in layout	a_note
graphic scale	a_scale
street name (major)	a_street_maj
street name (minor)	a_street_min
all titleblock lines*	a_tblk
*The colors and linetypes for these layers are set by property	

Description	Layer name
Utilities	
cable lines	e_cable
cable point	e_cable_pt
cable symbol	e_cable_sym
cable text	e_cable_txt
electric utility lines	e_elec
point layer for electric symbols	e_elec_pt
electric utility symbols	e_elec_sym
electric utility text	e_elec_txt
existing force main lines	e_fm
existing force main point	e_fm_pt
existing force main symbol	e_fm_sym
existing force main text	e_fm_txt
gas utility lines	e_gas
point layer for gas symbols	e_gas_pt
gas utility symbols	e_gas_sym
gas utility text	e_gas_txt
sanitary utility lines	e_san
point layer for sanitary symbols	e_san_pt
sanitary symbols	e_san_sym
sanitary utility text	e_san_txt
storm utility lines	e_stm

point layer for storm symbols	e_stm_pt
storm symbols	e_stm_sym
storm utility text	e_stm_txt
telephone lines	e_tel
point layer for telephone symbols	e_tel_pt
telephone symbols	e_tel_sym
telephone utility text	e_tel_txt
misc. utility lines	e_util
point layer for misc. utility symbols	e_util_pt
misc. utility symbols	e_util_sym
misc. utility text	e_util_txt
water main utility lines	e_wm
point layer for water main structure symbols	e_wm_pt
water main structure symbols	e_wm_sym
water main text	e_wm_txt
proposed cable lines	p_cable
proposed cable symbol	p_cable_sym
proposed cable text	p_cable_txt
proposed electric lines	p_elec
proposed electric symbol	p_elec_sym
proposed electric text	p_elec_txt
proposed force main	p_fm
proposed force main text	p_fm_txt
proposed gas lines	p_gas
proposed gas symbol	p_gas_sym
proposed gas text	p_gas_txt
proposed jack & bore	p_jbore
proposed jack & bore text	p_jbore_txt
proposed sanitary	p_san
proposed sanitary symbol	p_san_sym
proposed sanitary text	p_san_txt
proposed storm	p_stm
proposed storm text	p_stm_txt
proposed storm symbol	p_stm_sym
proposed structure text	p_*str_txt
proposed telephone lines	p_tel
proposed telephone symbol	p_tel_sym
proposed telephone text	p_tel_txt
proposed underdrain	p_udrain
proposed underdrain text	p_udrain_txt
proposed water main	p_wm
proposed water main symbol	p_wm_sym
proposed water main text	p_wm_txt
*insert the utility name here (stm, san, wm etc)	

Miscellaneous

existing dimensions	e_dim
layers to be frozen	freeze
hatch boundaries	hatch_bound
proposed building dimension	p_bldg_dim
proposed building	p_bldg
proposed building hatch	p_bldg_hatch
proposed building text	p_bldg_txt
proposed major contours	p_conmaj
proposed minor contours	p_conmin
proposed contour text	p_cont_txt
proposed dimensions	p_dim
point layer for proposed grades	p_grade_pt
proposed elevations	p_grade_txt
proposed grading limit line	p_gradlmt
proposed grading limit dimension	p_gradlmt_dim
proposed grading limit text	p_gradlmt_txt
proposed guardrail	p_grail
proposed parking lot text	p_park_txt
proposed signs	p_sign_sym
proposed tree symbol	p_tree_sym
proposed wall	p_wall
soil boring symbol	sb_sym
soil boring text	sb_txt
viewports	vp

Description**Layer name****Drainage**

drainage arrows	p_drain_sym
proposed ditch	p_ditch
proposed ditch text	p_ditch_txt
proposed drainage area text	p_drainage_txt
erosion control structures (inlet filter)	p_eroctrl_sym
erosion control text	p_eroctrl_txt
proposed silt fence	p_silt
drainage area boundaries	p_drainage

Description**Layer name****Profiles**

existing centerline of structures	e_prf_cl
-----------------------------------	----------

existing ground center	e_prf_grndc
existing ground center elevations	e_prf_grndc_txt
existing ground left	e_prf_grndl
existing ground left elevations	e_prf_grndl_txt
existing ground right	e_prf_grndr
existing ground right elevations	e_prf_grndr_txt
existing sanitary	e_prf_san
existing sanitary structure	e_prf_san_sym
existing sanitary text	e_prf_san_txt
existing storm	e_prf_stm
existing storm structure	e_prf_stm_sym
existing storm text	e_prf_stm_txt
existing text	e_prf_txt
existing water main	e_prf_wm
existing water main structures	e_prf_wm_sym
existing water main text	e_prf_wm_txt
proposed centerline of structures	p_prf_cl
proposed ditch text	p_prf_ditch_txt
proposed ditch, left	p_prf_ditchl
proposed ditch, right	p_prf_ditchr
proposed ground center	p_prf_grndc
proposed ground center text	p_prf_grndc_txt
proposed ground left	p_prf_grndl
proposed ground left text	p_prf_grndl_txt
proposed ground right	p_prf_grndr
proposed ground right text	p_prf_grndr_txt
proposed sanitary	p_prf_san
proposed sanitary structure	p_prf_san_sym
proposed sanitary text	p_prf_san_txt
proposed storm	p_prf_stm
proposed storm structure	p_prf_stm_sym
proposed storm text	p_prf_stm_txt
proposed structure labels	p_prf_str_txt
proposed text	p_prf_txt
proposed water main	p_prf_wm
proposed water main structure	p_prf_wm_sym
proposed water main text	p_prf_wm_txt
grid base	prf_base
grid elevations	prf_elev
profile grid lines	prf_grid
grid stations	prf_sta

Description

Layer name

Existing topography

building lines

e_bld

building hatch	e_bld_hatch
existing building point	e_bld_pt
building text	e_bld_txt
existing building dimension	e_bld_dim
road centerline	e_cl
existing centerline point	e_cl_pt
existing contours (major)	e_conmaj
existing contours (minor)	e_conmin
point layer for cultural symbols	e_cult_pt
cultural symbols (e.g. mailboxes)	e_cult_sym
auto offset text	e_cult_txt
existing culvert	e_culv
existing culvert point	e_culv_pt
existing culvert symbol	e_culv_sym
curb	e_curb
existing curb point	e_curb_pt
ditch centerline	e_ditch
existing ditch point	e_ditch_pt
driveways	e_dw
existing driveway point	e_dw_pt
edge of asphalt	e_eoa
existing asphalt hatch	e_eoa_hatch
existing edge of asphalt point	e_eoa_pt
existing edge of brick	e_eobr
existing edge of brick point	e_eobr_pt
existing brick hatch	e_eobr_hatch
edge of concrete	e_eoc
existing concrete hatch	e_eoc_hatch
existing edge of concrete point	e_eoc_pt
edge of gravel	e_eog
existing gravel hatch	e_eog_hatch
existing edge of gravel point	e_eog_pt
existing edge of other	e_eoo
existing edge of other hatch	e_eoo_hatch
existing edge of other point	e_eoo_pt
fence lines	e_fence
existing fence point	e_fence_pt
fence symbols	e_fence_sym
existing face of curb	e_foc
guardrail lines	e_grail
existing guardrail point	e_grail_pt
guardrail symbol	e_grail_sym
existing pavement marking	e_pm
point layer for rock symbols	e_rock_pt
rock symbol	e_rock_sym
existing railroad line	e_rr
existing railroad point	e_rr_pt
existing railroad symbol	e_rr_sym

road shoulder	e_shldr
road shoulder point	e_shldr_pt
shrub line	e_shrub
point layer for shrub symbols	e_shrub_pt
shrub symbols	e_shrub_sym
point layer for sign symbols	e_sign_pt
sign symbols	e_sign_sym
top and bottom of banks or slopes	e_topo
point layer for e_topo	e_topo_pt
annotations (e.g. conc., edge/asph. Etc.)	e_topo_txt
tree lines	e_tree
point layer for tree symbols	e_tree_pt
tree symbols	e_tree_sym
existing landscaping or planted areas	e_veg
existing vegetation point	e_veg_pt
sidewalk	e_walk
existing sidewalk hatch	e_walk_hatch
existing sidewalk point	e_walk_pt
wall	e_wall
existing wall text	e_wall_pt
existing wetland	e_wtlnd
existing wetland hatch	e_wtlnd_hatch
existing wetland point	e_wtlnd_pt
edge of water	e_wtr
existing water hatch	e_wtr_hatch
existing edge of water point	e_wtr_pt

Description

Layer name

Proposed design

proposed asphalt	p_eoa
proposed back of curb	p_boc
proposed road centerline	p_cl
proposed concrete	p_eoc
proposed face of curb	p_foc
proposed shoulder	p_eos
proposed walk	p_walk

Description

Layer name

Staging

proposed stage lines	p_stage
proposed staging dimensions	p_stage_dim
proposed staging hatch	p_stage_hatch

stage symbols (signs, arrows, barrels etc.)
proposed staging text
Note: for multiple stages add 1, 1a, 2, 2a etc
I.e. p_stage1a p_stage2 etc.

p_stage_sym
p_stage_txt

Description

Layer name

PMS

proposed pavement markings
proposed pavement marking dimensions
proposed pavement marking symbols
proposed pavement marking text
proposed sign symbol
proposed sign text

p_pm
p_pm_dim
p_pm_sym
p_pm_txt
p_sign_sym
p_sign_txt

Description

Layer name

Removal

proposed removal lines
proposed removal hatch
proposed removal symbols
proposed removal text

p_rem
p_rem_hatch
p_rem_sym
p_rem_txt

Description

Layer name

Details

existing or lightweight object lines
interior medium weight object lines
heavy object lines
detail center lines
existing detail dimensions
existing detail text
hidden object lines
detail notes
proposed detail dimensions
proposed detail text
detail subtitle
detail title
detail hatch
detail section lines

d_det_1
d_det_3
d_det_5
d_det_cen
d_det_edim
d_det_ext
d_det_hid
d_det_notes
d_det_pdim
d_det_ptxt
d_det_sub
d_det_title
d_det_hatch
d_det_sec

Description**Survey**

Description	Layer name
aerial control points	e_actrl
aerial control text	e_ctrl_txt
point layer for benchmarks	e_bm_pt
benchmark symbols	e_bm_sym
benchmark text	e_bm_txt
existing boundary line	e_bndy
existing boundary dimension	e_bndy_dim
existing boundary point	e_bndy_pt
existing boundary symbol	e_bndy_sym
existing boundary text	e_bndy_txt
existing bridge line	e_brg
existing bridge hatch	e_brg_hatch
existing bridge point	e_brg_pt
control:traverse & benchmark lines	e_ctrl
control:traverse & benchmark points	e_ctrl_pt
control:traverse & benchmarks symbols	e_ctrl_sym
control:traverse & benchmarks text	e_ctrl_txt
existing easement	e_esmt
existing easement dimensions	e_esmt_dim
existing easement text	e_esmt_txt
existing road easement	e_esmtrd
existing road easement dimension	e_esmtrd_dim
existing road easement text	e_esmtrd_txt
existing sanitary easement	e_esmts
existing sanitary easement dimension	e_esmts_dim
existing sanitary easement text	e_esmts_txt
existing storm easement	e_esmtstm
existing storm easement dimension	e_esmtstm_dim
existing storm easement text	e_esmtstm_txt
existing water easement	e_esmtwm
existing water easement dimension	e_esmtwm_dim
existing water easement text	e_esmtwm_txt
existing lots	e_lot
existing lot dimension	e_lot_dim
existing lot text	e_lot_txt
point layer for monument symbols	e_mon_pt
monument symbols	e_mon_sym
monument text	e_mon_txt
existing property iron symbol	e_prir_sym
existing property iron text	e_prir_txt
section lines	e_secline
existing row dimension	e_row_dim
existing row text	e_row_txt
section line text	e_secline_txt

existing row	e_row
existing setback line	e_setbk
	e_setbk_dim
existing setback dimension	
existing setbk text	e_setbk_txt
proposed boundary line	p_bndy
proposed boundary dimension	p_bndy_dim
proposed boundary text	p_bndy_txt
proposed easement	p_esmt
proposed easement text	p_esmt_txt
proposed grading easement	p_esmtgrad
proposed grading easement dimension	p_esmtgrad_dim
proposed grading easement text	p_esmtgrad_txt
proposed road easement	p_esmtrd
proposed road easement text	p_esmtrd_txt
proposed sanitary easement	p_esmtsan
proposed sanitary easement text	p_esmtsan_txt
proposed storm easement	p_esmtstm
proposed storm easement text	p_esmtstm_txt
proposed temporary grading easement	p_esmttemgrad
proposed temp grading easement dimension	p_esmttemgrad_dim
proposed temp grading easement text	p_esmttemgrad_txt
proposed water easement	p_esmtwm
proposed water easement text	p_esmtwm_txt
proposed lot line	p_lot
proposed lot dimension	p_lot_dim
proposed lot text	p_lot_txt
proposed property iron	p_prir_sym
proposed property iron text	p_prir_txt
proposed row	p_row
proposed row dimension	p_row_dim
proposed row text	p_row_txt
proposed setback	p_setbk
proposed setback dimension	p_setbk_dim
proposed setback text	p_setbk_txt

Appendix C

Detailed Engineering Submittal Form

Charter Township of Ypsilanti
Detailed Engineering Review Application

Site Name:	OHM Job Number: (for OHM use)		
Zoning:	Parcel ID:		
Date Approved by Planning Commission:			
Applicant:	Phone: ()	Fax: ()	
Address:	City:	State:	Zip:
Design Engineer:	Phone: ()	Fax: ()	
Address:	City:	State:	Zip:

Proposed Site Improvements:

Water Main No Yes If yes, _____ feet of _____ inch water main
and a total of _____ water services.

Sanitary Sewer No Yes If yes, _____ feet of _____ inch sanitary sewer
and a total of _____ leads.

Storm Sewer No Yes If yes, _____ feet of storm pipe with detention facilities
designed to detain _____ cubic feet of runoff.

Other Items:

Storm Water Discharge Location: _____

Total area of disturbance: _____ acres

Project Estimate: The applicant shall submit a complete preliminary engineer’s estimate including quantity, unit cost and total costs for each individual item (e.g. 8-inch ductile iron water main, 4-foot diameter manhole, etc.). The unit costs shall include the cost of labor and materials for each item. A sample of this estimate can be found attached to this document. A summary of the division costs calculated by the design engineer shall be completed on this form. These prices will be used in development of bonding requirements that will be delivered to the applicant upon receiving engineering plan approval.

The Detailed Engineering Review Application and a detailed engineering estimate must be approved by Orchard Hiltz & McCliment prior to submitting plans and their associated fees to the Township Community & Economic Development Department. Estimates and this application can be e-mailed to matt.parks@ohm-advisors.com or jessica.howard@ohm-advisors.com.

Division	Total Cost
Site Grading	\$
Sidewalks & Bike Paths	\$
Storm Sewer	\$
Water Main	\$
Sanitary Sewer	\$
Landscaping	\$
Soil Erosion and Sedimentation Control	\$

TOTAL PRELIMINARY PROJECT COST	\$
---------------------------------------	-----------

Estimate Prepared by: _____ P.E.

<i>Seal of Professional Engineer Registered to practice in the Station Of Michigan</i>

Sample Project Estimate*

Site Grading/Sidewalks & Bike paths

Item	Quantity	Unit	Unit Cost	Total Cost
Mass Grading	1	sum	\$75,000.00	\$75,000.00
4" Concrete Sidewalk	2500	sft	\$3.50	\$8,750.00
3" HMA Bike Path	2500	sy	\$8.00	\$20,000.00
Total Division Cost				\$103,750.00

Water Main

Item	Quantity	Unit	Unit Cost	Total Cost
8-inch CL54 Ductile Iron Water Main	1555	lft	\$45.00	\$69,975.00
Polyethylene Wrap	1555	lft	\$0.50	\$777.50
8" x 8" Tapping Sleeve Valve & Well	2	ea	\$2,750.00	\$5,500.00
1-inch Type K Copper Water Service	1	ea	\$775.00	\$775.00
Total Division Cost				\$77,027.50

Sanitary Sewer

Item	Quantity	Unit	Unit Cost	Total Cost
10" ABS Truss Pipe	1800	lft	\$65.00	\$117,000.00
6" PVC SDR 26 Sewer Leads	300	lft	\$50.00	\$15,000.00
4' Diameter Manhole	20	ea	\$2,250.00	\$45,000.00
Total Division Cost				\$177,000.00

Storm Sewer

Item	Quantity	Unit	Unit Cost	Total Cost
12" C-76 CL IV Storm Sewer	351	lft	\$28.00	\$9,828.00
18" C-76 CL IV Storm Sewer	322	lft	\$35.00	\$11,270.00
2' Inlet	4	ea	\$1,500.00	\$6,000.00
4' Manhole	3	ea	\$1,750.00	\$5,250.00
36" CMP Standpipe	1	ea	\$3,000.00	\$3,000.00
18" Concrete End Section	3	ea	\$700.00	\$2,100.00
Total Division Cost				\$37,448.00

Soil Erosion & Sedimentation Control

Item	Quantity	Unit	Unit Cost	Total Cost
Silt Fence	2805	lft	\$3.00	\$8,415.00
Inlet Filters	7	ea	\$250.00	\$1,750.00
Total Division Cost				\$10,165.00

*The applicant shall note that the above document is a sample of an acceptable engineer's estimate. The estimate must include all items of work and appropriate quantities to complete work as described on the plan. Costs shall be based off current material and labor costs.

Appendix D

Pre-Construction Meeting Forums

CONSTRUCTION CONTACT INFORMATION



Project Name: _____
Location (include section #): _____ **Project Supervisor:** _____
OHM Project No.: _____ **Municipality Project No.:** _____

Developer/Owner	Phone:
Street Address	Fax:
City, State & Zip	Email:
Contact Person:	Emergency:

(If a different professional engineer/professional surveyor is going to complete the record drawings, please list them here)

Design Engineer	Phone:
Street Address	Fax:
City, State & Zip	Email:
Contact Person:	Emergency:

Prime Contractor	Phone:
Street Address	Fax:
City, State & Zip	Email:
Contact Person:	Emergency:
Safety Officer:	

CONSTRUCTION CONTACT INFORMATION continued

Mass grading/soil	
Street Address	
City, State & Zip	
Contact Person:	

Phone:	
Fax:	
Email:	
Emergency:	

Underground	
Street Address	
City, State & Zip	
Contact Person:	

Phone:	
Fax:	
Email:	
Emergency:	

Paving	
Street Address	
City, State & Zip	
Contact Person:	

Phone:	
Fax:	
Email:	
Emergency:	

Landscape	
Street Address	
City, State & Zip	
Contact Person:	

Phone:	
Fax:	
Email:	
Emergency:	

Other: Concrete	
Street Address	
City, State & Zip	
Contact Person:	

Phone:	
Fax:	
Email:	
Emergency:	

After the pre-construction meeting, please fax this completed sheet to the OHM Construction Department at 734-522-6427.

CERTIFICATE OF INSURANCE

PRODUCER

YOUR INSURANCE COMPANY

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

COMPANIES AFFORDING COVERAGE
COMPANY A:

INSURED

CONTRACTOR

COMPANY B:
COMPANY C:
COMPANY D:

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
A	GENERAL LIABILITY				GENERAL AGGREGATE	\$1,000,000
	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY				PRODUCTS-COMP/OP AGG	\$500,000
	<input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCUR				PERSONAL & ADV INJURY	\$500,000
	<input checked="" type="checkbox"/>				EACH OCCURRENCE	\$500,000
	<input checked="" type="checkbox"/>				FIRE DAMAGE (Any one fire)	
A	AUTOMOBILE LIABILITY				MED EXP (Any one person)	
	<input checked="" type="checkbox"/> ANY AUTO				COMBINED SINGLE LIMIT	\$1,000,000
	<input type="checkbox"/> ALL OWNED AUTOS				BODILY INJURY (Per person)	\$500,000
	<input type="checkbox"/> SCHEDULED AUTOS				BODILY INJURY (Per accident)	\$500,000
	<input type="checkbox"/> HIRED AUTOS				PROPERTY DAMAGE	\$200,000
A	NON-OWNED AUTOS					
	STORAGE LIABILITY				AUTO ONLY-EA ACCIDENT	
	<input type="checkbox"/> ANY AUTO				OTHER THAN AUTO ONLY:	
	<input type="checkbox"/>				EACH ACCIDENT	
	<input type="checkbox"/>				AGGREGATE	
B	EXCESS LIABILITY				EACH OCCURRENCE	
	<input checked="" type="checkbox"/> UMBRELLA FORM				AGGREGATE	
	<input type="checkbox"/> OTHER THAN UMBRELLA FORM					
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY				STATUTORY LIMITS	
	<input type="checkbox"/> INCL				EACH ACCIDENT	
	THE PROPRIETOR/PARTNERS/ EXECUTIVE OFFICERS ARE: <input type="checkbox"/>				DISEASE-POLICY LIMIT	
	<input type="checkbox"/> EXCL				DISEASE-EACH EMPLOYEE	
	<input type="checkbox"/>					
	OTHER					

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS

Project Name, Additionally Insured: Orchard, Hiltz & McCliment, Inc., Charter Township of Ypsilanti, the Township Board and individual members thereof, the City of Ypsilanti, the City Board and individual members thereof, the Township and City Engineer and members of his staff, Township and City employees and agents for the Township and City of Ypsilanti Community Utilities Authority, its Board of Commissioners, and the individual members thereof, the YCUA staff and employees, the YCUA Consulting Engineer and his employees, and any and all other agents of YCUA.

CERTIFICATE HOLDER

OWNER/DEVELOPER

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NEMED TO THE LEFT.

AUTHORIZED REPRESENTATIVE

MAINTENANCE AND GUARANTEE BOND

(for private site development)

Obligee Review or Project No. _____ Bond No. _____
(if applicable)

KNOW ALL MEN BY THESE PRESENTS:

That we, the developer, _____ (hereinafter called Principal), and _____ (hereinafter called Surety), a corporation organized under the laws of the State of _____ and authorized to do a surety business in the State of Michigan, are held and firmly bound unto the municipal/public agency known as _____ (hereinafter called Obligee) in the full and just sum of _____ Dollars and _____ Cents (\$ _____), lawful money of the United States of America, for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, said Principal has constructed or caused to have constructed the following described public improvements in a public easement and/or right-of-way:

(Check all applicable items)

- | | |
|---|---|
| <input type="checkbox"/> Storm Sewer System
<input type="checkbox"/> Sanitary Sewer System
<input type="checkbox"/> Water Main System | <input type="checkbox"/> Roadway
<input type="checkbox"/> Sidewalk or Pathway
<input type="checkbox"/> Other: _____ |
|---|---|

which have been or are about to be accepted by the Obligee for the project known as _____ and located in Section _____, T _____, and R _____; more specifically at _____.

AND WHEREAS, it is required that the Principal should guarantee the project from defects caused by faulty materials or workmanship for a period of two year(s) from and after the date of acceptance of same by the Obligee.

The Obligee shall notify the Principal in writing of any defect for which the Principal is responsible and shall specify in said notice a reasonable period of time within which the Principal shall have to correct said defect. If the Principal fails to correct such defect within the time specified in said notice, then the Surety shall have sixty (60) days thereafter within which to take such action as it deems necessary to insure performance of the Principal's obligation. If such defect is not corrected after the expiration of such sixty-day period, then the Obligee shall have the right to correct such defect and the Principal and Surety, jointly and severally, shall pay all costs and expenses incurred by Obligee in correcting such defect; including but not limited to, the engineering, legal, administration and other costs, together with any damages either direct or consequential, which the Obligee may sustain on account of the Principal's failure to correct such defect. In addition, the Obligee shall have the right to contract for the correction of such defect and, upon acceptance of the lowest responsible bid, the Principal and Surety shall become immediately liable for the amount of the said bid.

If any repair is necessary to be made at once to protect life and property, then and in that case, the Obligee may take immediate steps to repair or barricade such defects without notice to the Principal or Surety. In such accounting, the Obligee shall not be held to obtain the lowest figures for the doing of the work, or any part thereof, but all sums actually paid therefore shall be charged to the Principal or Surety. In this instance, the judgment of the Obligee is final and conclusive.

The Principal shall fully indemnify, defend and save harmless the Obligee, and its agents, consultants, employees and officers from all suits and actions for damages of every name and description brought or claimed against them for, or on account of, any injury or damage to person or property received or sustained by any party or parties, by or from any of the acts or omissions or through the negligence of said Principal, and its servants, agents or employees, in the prosecution of the work, and from any and all claims arising under the Workman's Compensation Act, so-called, of the State of Michigan.

NOW, THEREFORE, if the said Principal shall for a period of ____ year(s) from and after the date of acceptance of the completed project by the Obligee replace any and all defects arising in said work whether resulting from defective materials or defective workmanship, then the above obligation shall be null and void; otherwise to remain in full force and effect for ____ year(s) from the date of acceptance by the Obligee.

IN WITNESS WHEREOF, the parties have caused this instrument to be signed and sealed by their respective authorized officers this _____ day of _____, 20__.

WITNESS

Name: _____

PRINCIPAL

(seal)
By: _____
Name: _____
Title: _____
Address: _____

Phone: _____
Fax: _____

SURETY

Name: _____

(seal)
By: _____
Name: _____
Title: _____
Address: _____

Phone: _____
Fax: _____

Appendix E

Sample Easements

PUBLIC UTILITY EASEMENT

_____, (marital status must be filled in)
“grantor,” whose address is _____,
Ypsilanti, Michigan, in consideration of the sum of One (\$1.00) Dollar, receipt of which is hereby acknowledged and determined to be fair and just compensation by grantor, does, by these presents, covenant and warrant that grantor is the fee simple owner of the property described in **Exhibit A**, attached hereto, and does grant and convey to the Ypsilanti Community Utilities Authority, a Michigan municipal corporation, referred to in this agreement as “grantee,” whose address is 2777 State Road, Ypsilanti, Michigan 48198, a permanent and perpetual easement and right-of-way upon, over, under and across that portion of said property described in **Exhibit B**, attached hereto, for the purpose of construction, installation, inspection, maintenance, repair, operation, alteration, removal (and similar and related activity) of municipally owned utilities, including, without limitation, water lines and/or pipes, storm sewer lines and/or pipes and sanitary sewer lines and/or pipes and any and all connections thereto.

The grantor agrees not to build or to convey to others permission to build any permanent structures on the described easement (**Exhibit B**).

The grantee, by its employees, agents or independent contractors shall have full right, upon, over, under and across said property for the purpose of constructing, installing, inspecting, maintaining, repairing, operating, altering or removing (and similar and related activity) said municipally owned utilities and, further, for the purpose of storing or moving machinery, materials or other incidentals in connection with and during such activity. Further, grantee, by its employees, agents, or independent contractors shall have a permanent easement consisting of the full right of ingress and egress over and upon other lands of the grantor necessary to and for the sole purpose of gaining access to said property and municipally owned utilities.

Upon completion of such construction, installation, inspection, maintenance, repair, operation, alteration or removal (or similar and related activities) of said municipally owned utilities including ingress and egress thereto, any and all of grantor’s property used for said purposes shall be left as nearly and as reasonably possible in the same condition as before such work began and all machinery, materials and equipment shall be removed.

The granting of the permanent easement as stated, including a permanent easement for use of grantor’s property for ingress and egress shall vest in the grantee the authority to use said property solely for the purposes designated in this agreement. This grant of easements shall run with the land and shall be binding upon the heirs, successors and assigns of the grantor and grantee. It is understood and agreed that any and all improvements or appurtenances of the municipally owned utilities in or upon the said property shall become and remain at all times the property of the grantee, its successors and assigns and shall be subject to the grantee’s fees, rules, regulations and local ordinances.

IN WITNESS WHEREOF, grantor has executed this instrument on _____, 20__ .

IN THE PRESENCE OF:

(Witnesses and grantor must print or type name below signature in black ink.)

WITNESSES:

GRANTOR

Subscribed and sworn to before me this _____ day of _____, 20__.

Notary Public
_____ County, Michigan
My Commission Expires: _____

**This instrument drafted by and when
recorded, return to:**

Thomas E. Daniels (P29565)
Pear Sperling Eggan & Muskovitz, P.C.
1349 S. Huron Street, Suite 1
Ypsilanti, MI 48197

Tax Identification No.: _____

EXHIBIT A

Insert a stamped and sealed survey of the subject property.

EXHIBIT B

Insert a stamped and sealed sketch of the easement

Appendix F

Grading Certificate

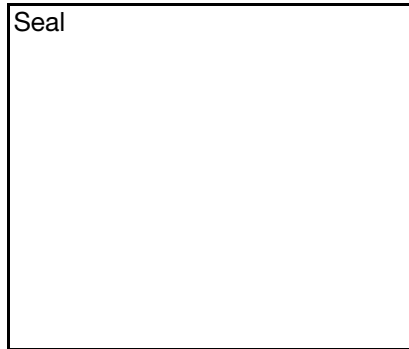
GRADING CERTIFICATION

Submit a sealed grading certificate attesting that finish elevations are in compliance with approved grading plan along with the as-built grading plan(s) showing any changes that were made in the field.

These documents were prepared by:

Print Name

Signed



Appendix G

Private Road Ordinance

ARTICLE II. PRIVATE ROADS

Sec. 47-26. Intent.

The intent of this article is to allow the use of private roads for access to residential areas. Unobstructed, safe, and continuous access to lots is necessary to promote and protect the health, safety, and welfare of the public. Such access is not only necessary for the convenience and safety of residents, but it is crucial to insure that emergency vehicles have safe and efficient access to private property. Therefore, when the use of private roads is permitted, it is essential that they meet minimum standards and specifications. The procedures, standards and specifications hereinafter set forth are provided to assure the even and fair application of requirements to meet the intent of this article.

(Ord. No. 97-174, § 10, 12-16-97)

Sec. 47-27. Definitions.

The following definitions shall apply in the interpretation and enforcement of this article:

Building: An enclosed structure used or intended for use for the housing, enclosure or shelter of people, animals or chattel.

County drain commission: The Drain Commission of Washtenaw County, Michigan.

County road commission: The Road Commission of Washtenaw County, Michigan.

Lot: A parcel of land; real estate.

Permit: A right-of-way permit issued pursuant to this article.

Private driveways: A paved or gravel area directly behind the street curb providing vehicular access to a single-family residence. A private driveway that is shared by two single-family residences that have the appropriate lot width, pursuant to the current requirements of the zoning ordinance, on a public road or approved private road, are not considered private roads and are not regulated by this article.

Private road: A route which provides vehicular access to a lot or lots and which has not been dedicated to public use. For the purposes of this article, the term private road shall include everything within a private road right-of-way.

Road right-of-way: A strip of land reserved for the use of streets, walks, utilities, landscaping and other infrastructure.

Street: The surface within a road right-of-way that is used primarily for the movement of motorized vehicles.

Township board: The Board of the Charter Township of Ypsilanti.

Township clerk: The Clerk of the Charter Township of Ypsilanti.

Township attorney: A person or firm authorized by the township board to perform the duties of township attorney as set forth in this article.

Township engineer: A person or firm authorized by the township board to perform the duties of township engineer as set forth in this article.

Township planner: A person or firm authorized by the township board to perform the duties of township planner as set forth in this article.

(Ord. No. 97-174, § 20, 12-16-97; Ord. No. 2003-311, 3-4-03)

Sec. 47-28. General provisions.

- (a) Every lot in the Charter Township of Ypsilanti that is improved with a building shall have access for ingress and egress for all vehicular traffic including fire, police, and ambulance services and vehicles.
- (b) Frontage on a private road which meets the requirements of this article may be used to satisfy the road frontage and lot width requirements of the zoning ordinance.
- (c) No lot served by a private road shall be improved with a building subsequent to the date of adoption of this article, unless a permit in accordance with this article has been issued.
- (d) No person shall construct, alter, or extend a private road without compliance with this article and obtaining a permit as hereinafter provided. This provision shall not be construed to prohibit normal maintenance of a non-conforming private road.

(Ord. No. 97-174, § 30, 12-16-97)

Sec. 47-28.1. Private driveway design standards.

- (a) Only one house can be constructed using the private driveway standards; more than one house shall require an approved private road.
- (b) A 12-foot wide driveway shall be constructed within a 66-foot wide private right-of-way/easement.
- (c) The private right-of-way/easement shall provide for ingress, egress, stormwater drainage, installation and maintenance of public and private utilities.
- (d) The parcel being served by the private driveway must meet the zoning ordinance requirements for lot width at the front yard setback line as measured from the end of the private driveway right-of-way/easement.
- (e) The design and engineering of a private driveway shall be similar to that of a private road to insure that proper grading and stormwater management is achieved.

(Ord. No. 2003-311, 3-4-03)

Sec. 47-29. Private road design standards.

- (a) All road construction shall be centered on the road right-of-way.
- (b) All paved dead-end roads shall be provided with a cul-de-sac constructed to the following standards:
 - (1) A minimum external right-of-way diameter of 120 feet.
 - (2) Cul-de-sac roads shall terminate in circular pavement areas with a minimum diameter of 90 feet.
 - (3) Curbed, landscaped islands are required within any cul-de-sac circle. Such islands shall have a minimum radius of 20 feet.
- (c) Right-of-way intersections shall have a radius of 15 feet.
- (d) A boulevard cross section will be permitted at the main entrance to a development subject

to the following standards:

- (1) A minimum right-of-way width of 100 feet shall be provided for the entire length of the boulevard.
 - (2) A boulevard median shall not exceed 300 feet in length nor shall it be less than 100 feet in length.
 - (3) Sufficient taper of the right-of-way width, in accordance with design speed, must be provided adjacent to a boulevard section.
 - (4) Boulevard islands shall be curbed and shall be no less than ten feet and no greater than 20 feet in width.
 - (5) Boulevard islands shall not extend beyond the edge of the intersecting road, or its auxiliary lane.
 - (6) Sufficient taper of the roadway width must be provided, as per MDOT requirements, adjacent to the interior end of a boulevard.
- (e) Horizontal curves in proposed streets which appear to be continuous shall be not less than 230 foot centerline radius.
- (f) The radius of corners at all intersections shall be at least 35 feet to the edge of pavement.
- (g) The intersecting angle of proposed center lines of roads shall be 90 degrees.
- (h) The horizontal alignment of road intersections shall include at least a 100 foot long tangent in all directions. An exception will be allowed for a T-intersection on the outside of a curve, provided that adequate sight distance is assured.
- (i) Intersections within a subdivision shall be spaced at least 125 feet apart from centerline to centerline.
- (j) When possible, approaches of side roads from opposite sides of a through road should be in direct alignment.
- (k) The road layout shall connect to existing outlots in adjacent developments, and shall provide outlots or other provisions for future connections to adjacent land that is presently undeveloped.
- (l) The layout of roads in the proposed plan shall provide at least two points of access to an existing public road and shall provide a continuous circuit for travel. An exception will be considered when, in the opinion of the board, the lands to be subdivided are limited in area or are subject to a natural barrier. Private roads shall not exceed 600 feet in length unless connected to another road system providing a second means of access to the development. Connections to existing public road systems shall be subject to the review and approval of the county road commission.
- (m) A minimum right-of-way width of 66 feet shall be provided.
- (n) Unless more stringent standards are required by this or other Ypsilanti Township ordinances, the connection between the right-of-way and the public road shall conform to the standards and specifications of the county road commission.
- (o) The right-of-way shall provide for ingress, egress, drainage and installation and maintenance of public and private utilities.
- (p) All private roads serving five or more lots shall provide the following:
- (1) Private roads providing ingress and egress to all two-lane, paved major or secondary thoroughfares shall be provided with paved acceleration and deceleration lanes and passing lanes.

(2) Private roads providing ingress and egress to all three-lane, paved major or secondary thoroughfares shall be provided with paved acceleration and deceleration lanes.

(3) Private roads providing ingress and egress to roads of four or more lanes shall be provided with paved tapers or turning lanes.

(4) Required lanes or tapers shall be indicated schematically on a site plan and shall be constructed in accordance with the standards for such facilities as established by the township engineer and/or the county road commission.

(q) All private roads shall meet the minimum design standards as set forth in Table 1 below.

Table 1
Requirements and Specifications for Private Roads

TABLE INSET:

Improvement	4 Lots or Less	5 Lots or More	
	Any Size	Lots 1 Acre or More	Lots Less Than 1 Acre
Minimum Right-of-Way Width	66 Feet	66 Feet	66 Feet
Minimum Street Width	18 Feet	24 Feet From Edge to Edge	29 Feet From Back of Curb
Street Surface Type	Gravel	Paved Bituminous	Paved Bituminous
Drainage Management	Ditch, No Curb	Ditch	Full Gurb and Gutter
Sidewalks	No	No	Yes

(r) The number of lots served by a private road cannot be increased to more than four unless said road meets the standards in Table 1 above.

(s) Lots that are one acre or greater in area and served by a private road cannot be divided to a size less than one acre unless said road meets the standards in Table 1 above.

(t) Private roads shall have a grade no greater than six percent. The grades within a street intersection shall not exceed three percent for a distance of 100 feet from the point of intersection.

(u) All private roads shall be built to meet or exceed Ypsilanti Township standards for private road construction.

(Ord. No. 97-174, § 40, 12-16-97)

Sec. 47-30. Submittal of application.

Applications for approval of a plan for private road construction shall be delivered to the township clerk and shall include the following:

(1) A legal description of each lot to be served by the private road, a legal description of the right-of-way, the names and addresses of all persons or parties owning an interest in

the title to the lots and right-of-way area.

(2) All plans shall be drawn on 24 inches by 36 inches sheets at a scale not smaller than one inch equals 40 feet horizontal, one inch equals four feet vertical.

(3) All elevations shall be related to the North American Datum, NAD, of 1988.

(4) All drawings shall be prepared by a civil engineer, registered in the State of Michigan.

(5) Drawings, shall be provided showing the following general information.

a. A map of existing conditions shall be provided showing at least the following information:

1. Adjoining subdivisions.
2. Adjoining roads.
3. Existing county or private drains, sewers and crossroad culverts on existing roads.
4. Railroads.
5. Adjoining parks and schools.
6. Easements for public access for construction and maintenance of drains, public utilities, etc., and their dimensions, in, over, and across private property within the development.
7. All trees with a diameter of eight inches or greater within 60 feet of centerline.
8. Existing buildings within 50 feet of the proposed right-of-way.
9. Existing topographic contours, at two-foot intervals.
10. Wetlands and water bodies inside of and within ten feet of the proposed right-of-way.
11. North arrow.

b. A location map not smaller than one inch equals 2000 feet with a north arrow.

c. The address, telephone number, seal and signature of the person who prepared the drawing.

d. Existing or proposed lot lines.

e. A map showing dimensions and bearings of the entire parcel

f. Proposed contours at two-foot intervals.

g. Two benchmarks in NAD that will not be affected by the construction of the private road.

(6) Plans for the private road including the following:

a. Plan view of each road showing the centerline, stations, edge of pavement and curb line if appropriate.

b. Location of proposed culverts, storm sewers and utilities.

c. Location of proposed traffic control and road-name signs.

d. Location of proposed street-light poles.

e. Intersection details (radius, auxiliary lanes, sight distance, curb tapers etc.).

- f. All pertinent survey information (a minimum of two benchmarks, curve data, section comers, north arrow, etc.).
 - g. Soil boring logs at sufficient intervals to determine the sub-grade condition. Soil borings shall be at a minimum of seven feet below proposed centerline elevations.
 - h. Location of all proposed sidewalks and bike paths, and any proposed curb drops to accommodate sidewalks.
 - i. Proposed topographic contours, at two-foot intervals, of the right-of-way area and all adjacent land.
 - j. Names of existing and proposed roads.
- (7) Drainage plan requirements for private roads with underground drainage systems.
- a. The location, size and invert elevations of all underground structures used for road drainage including:
 - 1. Location and type of inlets and clean-out points for underground drainage systems, including sumps in all catch basins.
 - 2. Standard detail for all catch basins, inlets, manholes, etc.
 - 3. Schedule of structure diameters, casting types, rim and invert elevations and sump notation where applicable.
 - 4. Detention design per township standards.
 - b. Profile of centerline.
 - c. Profile of top-of-curb with corresponding profile of right-of-way line.
 - d. Percent of grade and vertical curve data.
 - e. Profile of centerline, ditch and proposed ditch of county road(s) intersecting with the proposed private road.
 - f. Curb elevations a minimum of every 25 feet and centerline elevations at a minimum of every 50 feet.
 - g. Show locations and profile of all drains outside of the roadway area that are going to be used for roadside drainage and contours to show how flow will be directed there.
 - h. Invert elevations at all structures.
 - i. Legend of profile lines shall be shown on each road according to illustrations.
 - j. Notations shall be included to require continuous under-drain behind all curbs.
- (8) Drainage plan requirements for private roads with open ditch drainage systems.
- a. The location, size and depth of all underground structures used for road drainage including the following:
 - 1. Culvert size and lengths providing access to all lots in the development.
 - 2. Sizes, lengths, classes or gauges, and locations of all crossroad culverts.
 - 3. Detention/retention design information.
 - b. Each profile must be shown separately for the following:

1. Existing and proposed centerline.
 2. Right ditch and right-of-way.
 3. Left ditch and right-of-way.
 4. Centerline, ditch and proposed ditch of county road(s) adjacent to proposed subdivision with proper outlet thereto.
- c. Percent of grade of proposed centerline and independent ditches.
 - d. Numerical elevations of the existing and proposed centerline at each station (100 ft. or change in grade).
 - e. Vertical curve information.
 - f. Erosion control information (ditch bottom, slopes, sod, rip-rap, etc.).
 - g. Invert elevations of crossroad culverts.
 - h. Front slope and back slope information.
 - i. All drainage easements, including those in areas where the drainage outlet is not within control of a public agency.
- (9) A complete statement of all terms, conditions and agreements related to the proposed private road.
- (10) An agreement regarding the interconnection, access rights, maintenance and improvements of the right-of-way and roadway shall be submitted to the township for review. Such agreement shall include at least the following:
- a. Said maintenance agreement shall be in a form that will allow it to be recorded with the Washtenaw County Register of Deeds.
 - b. The agreement shall run with the land and specifically address the liability and responsibility of the parties to said agreement to maintain the private road pursuant to the specifications of this article. This shall include but is not limited to provisions for annual maintenance, snow removal, and the eventual repair or reconstruction of the road.
 - c. The agreement shall include rules regarding voting rights and responsibilities of parties to the agreement in relation to road maintenance and improvements.
 - d. The agreement shall include detailed legal descriptions of the private road and all properties allowed to use the road.
 - e. The agreement shall state that "the private road system may be connected to future public or private road systems when stub streets are shown on the approved plan for private roads."
- (11) A fee, as established by resolution of the township board, to defray the costs of inspection, plan review, administration and enforcement of this article, shall be collected with each application.
- (12) The application shall be signed by the applicant or agent thereof, in which case, it shall be accompanied by a duly executed and notarized power of attorney and shall represent that the applicant is making the application on behalf of all persons having an interest in the right-of-way or the abutting lots and shall be made under penalties of perjury.

(Ord. No. 97-174, § 50, 12-16-97)

Sec. 47-31. Plan approval and permit procedure.

(a) Upon receipt of an application, the township clerk shall bring the application before the township board at its next regular meeting. The township board shall refer the application materials to the appropriate bodies for review including but not limited to:

(1) The township engineer who will review the plans to assure that the proposal is in keeping with construction standards of this and other township ordinances.

(2) The township planner who will review the plans to assure that the proposal is in keeping with the township master plan and appropriate provisions of this article.

(3) The township attorney who will review all agreements.

(4) The township traffic consultant, if requested by the township, who will make recommendations regarding the number and location of curb cuts to public roads, potentials for connections, the need for signage, and other issues generally related to traffic management.

(5) The township fire department who will review street names, hydrant locations, turn-arounds and other applicable provisions. The board may, at its discretion, refer the application to the township planning commission or other appropriate bodies for review and comment.

(b) The township board shall consider the application, the reports of all reviewing agencies and all other relevant information in determining whether to approve the plan. The township board may impose such conditions as it deems necessary to achieve the intent and objectives of this article, which may include, but need not be limited to, conditions suggested by the review agencies. The breach of any such condition proposed by the township board shall automatically invalidate the plan.

(c) Approval of a plan for a private road shall be valid for a period of one year, or such longer period as determined by the township board, from the date of approval. If an application has not been filed for a permit for private road construction within the allotted time frame, then the approval shall be null and void and of no force and effect.

(d) Upon receiving plan approval, the applicant may file for a permit for the private road's construction. At such time, the following must be submitted to the township clerk:

(1) The applicant shall deposit with the township treasurer a sum of money, bank letter of credit or certified check in the amount sufficient to guarantee that the applicant shall perform the terms and conditions of the permit, including the payment of required fees. Upon issuance of certificate of completion any unused portion of the deposit shall be refunded to the applicant.

(2) A fee to cover township costs including the cost for township inspections. If the applicant does not directly pay the costs of inspection, the same shall be paid from the deposit noted in subsection (1) above.

(3) Proof that the county road commission has reviewed the plan. Proof can be in the form of a letter or permit.

(4) Proof that the county drain commission has reviewed the plan.

(5) Proof that an agreement regarding the interconnection, access rights, maintenance and improvements of the right-of-way, has been recorded with the Washtenaw County Register of Deeds.

Upon receipt of the required funds and information, the township clerk shall issue the permit

pursuant to the terms established by the township board resolution approving the application.

(e) Only the township shall have the authority to approve or deny applications for permits for private road construction. Permits issued by other governmental entities shall not serve as a substitute.

(f) A permit for private road construction shall be valid for a period of one year, or such longer period as determined by the township board, from the date of issuance of the required improvements. If the improvements have not been completed within the allotted time frame, then the permit shall be null and void and of no force and effect and all deposits shall be forfeited to Ypsilanti Township.

(Ord. No. 97-174, § 60, 12-16-97)

Sec. 47-32. Administration and enforcement.

(a) All required improvements shall be inspected by the township engineer at various stages of construction.

(b) The applicant's engineer shall certify to the township engineer, before the final inspection and report thereon are made, that the required improvements were made in accordance with this article and all approved plans.

(c) Upon completion of construction of the leveling course the township engineer shall make a final inspection and shall report the results of the final inspection to the township clerk in writing. Upon favorable recommendation from the township engineer, the township clerk shall issue a tentative certificate of completion.

(d) No building permit shall be issued for any lot fronting on a private road unless a tentative certificate of completion has been issued by the township.

(e) Upon completion of construction of the wearing course the township engineer shall make a final inspection and shall report the results of the final inspection to the township clerk in writing. Upon favorable recommendation from the township engineer, the township clerk shall issue a final certificate of completion.

(Ord. No. 97-174, § 70, 12-16-97)

Sec. 47-33. Variances.

When there are practical difficulties or unnecessary hardships in the way of carrying out the strict letter of this article, such as topographical and other physical characteristics of a parcel, the township board shall have the power to vary or modify the application of the provisions of this article so that the intent and purpose of this article shall be observed, public safety secured and substantial justice done.

(1) Any applicant may apply for a variance from any provision of this article by filing an application for variance with the township clerk.

(2) The township board shall hold a public hearing upon such application within 45 days of its filing.

(3) The township clerk shall give notice of the hearing to the owners of all property abutting and/or having access for ingress and egress of traffic by means of the private road described in the variance application, as well as law enforcement officials, fire officials and ambulance companies known by the clerk to serve such property. The notice shall be mailed to each such party and published in a newspaper of general circulation in the township no later than seven days prior to the hearing. Any party may

appear and comment at the hearing in person or by agent or by attorney.

(4) The township board shall keep a record of said hearing and shall render a decision not later than the next regular township board meeting held after the hearing date.

(5) The township board may attach reasonable conditions in granting any variance from any provision of this article, and the breach of any conditions or the failure of any applicant to comply with the conditions shall void the variance.

(6) If construction of the road has not commenced within two years from the date that a variance was granted, then the variance shall be null and void. The township board may grant a longer time frame and may grant an extension when so requested by the applicant.

(Ord. No. 97-174, § 80, 12-16-97)

Sec. 47-34. Nonconforming situations.

Private roads, legally constructed prior to the adoption of this article may continue in use subject to the following:

(1) No such road shall be enlarged or extended unless the entire road is brought into compliance with the standards of this article.

(2) No additional lots or home sites shall be created which are accessed by a nonconforming private road unless the entire road is brought into compliance with the standards of this article.

(3) Lots lawfully created prior to the adoption of this article, which are accessed by a nonconforming private road may be used in accordance with the requirements of the zoning ordinance.

(Ord. No. 97-174, § 90, 12-16-97)

Sec. 47-35. Violation and penalties.

Any person who violates any of the provisions of this article shall be deemed guilty of a misdemeanor and shall be punished by a fine of not more than \$500.00 or by imprisonment in the county jail for a period not to exceed 90 days or by both such fine and imprisonment. Any access which is used in violation of the terms of this article may be abated, restrained, enjoined and prohibited upon the commencement of an appropriate action in the circuit court.

(Ord. No. 97-174, § 100, 12-16-97)

Sec. 47-36. General exceptions.

Parcels or projects that are over 70 dwelling units or over 700 feet from a major or secondary thoroughfare subject to site plan, planned development, condominium or site condominium review by the planning commission shall be prohibited from utilizing private roads as defined in this article.

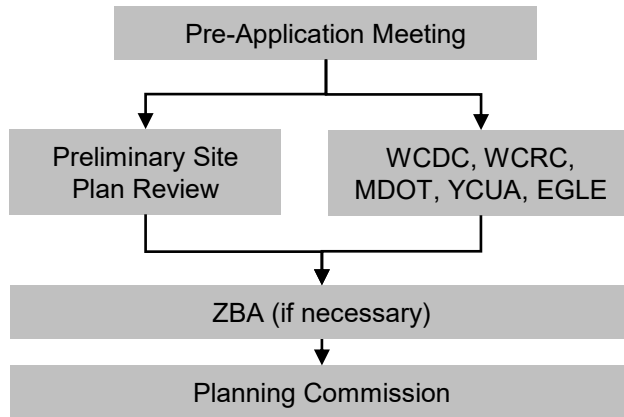
(Ord. No. 2001-268, 5-15-01; Ord. No. 2003-310, 2-4-03)

Appendix H

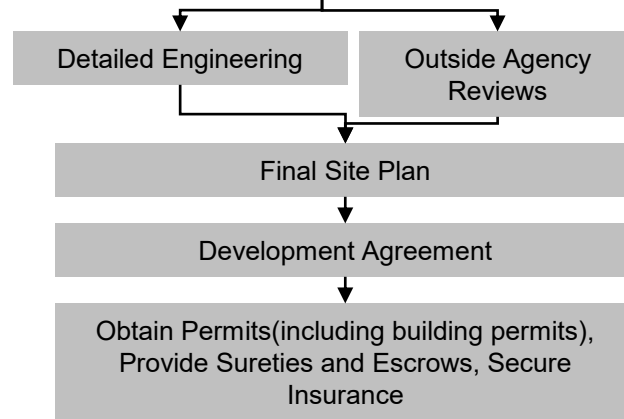
Development Flow Chart

Ypsilanti Township Development Process Flow Chart

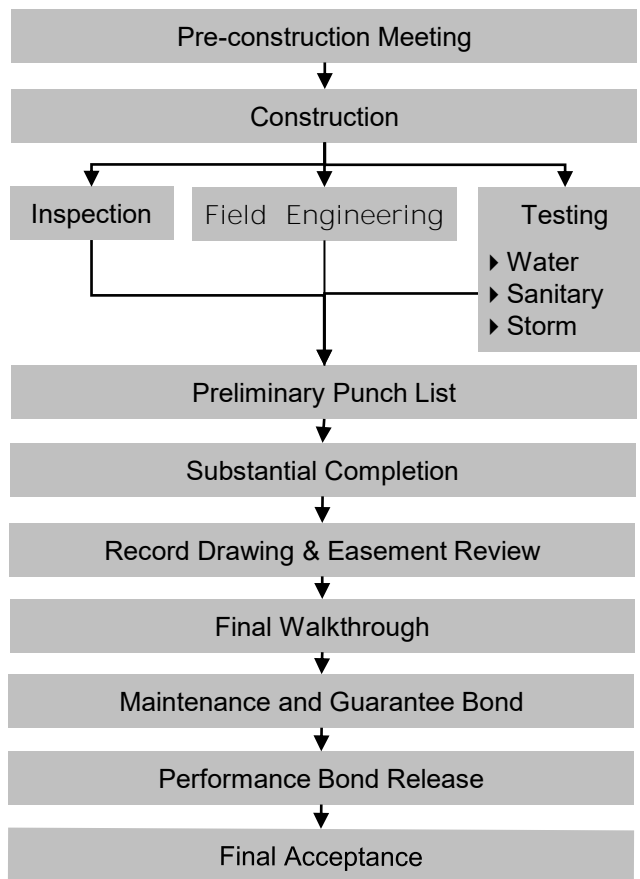
Site Plan Review Phase



Detailed Engineering Review Phase



Construction Phase



Appendix I

Stormwater Maintenance Agreement

**STORMWATER MANAGEMENT
LONG-TERM MAINTENANCE AGREEMENT AND PLAN**

THIS AGREEMENT is made this _____ day of _____, 20__, by and between the Charter Township of Ypsilanti, a municipal corporation, with principal offices located at 7200 S. Huron Dr. Ypsilanti, MI 48197, hereinafter "Township" and a _____ Michigan _____, with principal offices located _____, hereinafter "Proprietor".

RECITALS

1. Proprietor is developing certain property located in the Charter Township of Ypsilanti, Washtenaw County, Michigan as _____ ("Development") and as more particularly described in Exhibit "C" attached hereto.

2. The Proprietor must construct a stormwater management system to provide adequate drainage in the proposed Development as more particularly described in Exhibit "A" attached hereto.

3. The Township and the Proprietor desire that the stormwater management system to be constructed in the Development be maintained in perpetuity to ensure that it functions properly as designed and in conformity with applicable laws and regulations.

NOW, THEREFORE, for and in consideration of the mutual covenants and benefits to be derived hereunder, the receipt, adequacy, and sufficiency of which is hereby acknowledged, and fully incorporating the above-stated recitals into the agreement, the Township and the Proprietor agree as follows:

AGREEMENT

1. The Proprietor shall fully, completely, and unconditionally assume the obligations of maintaining the stormwater management system in the Development as follows:

A. The Proprietor agrees that it will inspect, repair, and maintain, at its own expense, the storm drainage system which is located within the Development in conformity with all applicable laws and regulations and in conformity with this Agreement. If the Proprietor fails to do so, then, upon reasonable notice to the Proprietor, the Township may enter upon said premises for the purposes of inspecting, repairing, and maintaining said storm drainage system, in which event the Proprietor agrees to pay the Township all reasonable charges and expenses incurred thereon.

2. The Proprietor, its agents, representatives, successors, and assigns shall defend, indemnify, and hold the Township harmless from and against any claims, demands, actions, damages, injuries, costs, or expenses of any kind or nature whatsoever, hereinafter "Claims", fixed or contingent, known or unknown, arising out of or in any way connected with the design, construction, use, inspection, maintenance, repair, or operation (or omissions in such regard) of the storm drainage system which is the subject of this Agreement. This indemnity

and hold harmless shall include reasonable costs, expenses, and attorney fees incurred by the Township in connection with such Claims or the enforcement of this Agreement.

3. This agreement shall bind the Proprietor, its successors and assigns, and any person or entity claiming any right or ownership in the Development and shall run with the land.

4. This Agreement shall be recorded at the Proprietor's expense with the Washtenaw County Register of Deeds.

5. Despite the indication of the drafter indicated below, which is included for recording purposes only, this Agreement shall not be construed in favor or against either Proprietor or Township, as it is a result of their mutual efforts.

IN WITNESS WHEREOF, the Proprietor and Township have executed this Agreement on the day and year first above written.

Name of Entity

WITNESSES:

By:

Its:

STATE OF MICHIGAN)
)ss:
COUNTY OF _____)

The foregoing instrument was acknowledge before me on this ____ day of ____, 20__ by _____, who stated under oath that s/he is the _____ of the _____ and that this easement was signed on behalf of the _____, by authority of its _____, and s/he acknowledged the granting of this easement to be the free act and deed of the _____.

Notary Public
_____ County, Michigan
Acting in Washtenaw County
My commission expires: _____

INSTRUMENT DRAFTED BY:
Charter Township of Ypsilanti

WHEN RECORDED RETURN TO:
Charter Township of Ypsilanti
Attn: Ms. Karen Lovejoy-Roe, Clerk
7200 S. Huron Drive
Ypsilanti, Michigan 48197

EXHIBIT A

Map Depicting Physical Limits of Stormwater Management System

EXHIBIT B

Detention Pond/Forebay

REQUIRED MAINTENANCE:

- Check the outlet regularly for clogging and clean when necessary (annually).
- If necessary, based on surroundings, mow grass side slopes (two times per year).
- Inspect entire system annually, including inlet/outlet pipes, restricted outlet structure(s), animal grates, and filters.
- Check banks and bottom for erosion and correct as necessary (annually).
- Remove sediment when accumulation reaches six (6) inches or if resuspension is observed.
- Re-seed banks near inlet/outlet and stabilize eroded banks as necessary.
- Add grasses such as sedges and rushes.
- Remove dead vegetation (early spring) that obstructs flow.
- Maintain a record of all maintenance performed on the system for Township inspection upon request.

If the outlet is pumped, then only a licensed electrician or company that provided the pump system should conduct any maintenance. Chemicals should not be applied to the detention basins, side slopes, or butter strip.

Manufactured/Underground Detention Systems

REQUIRED MAINTENANCE:

- Check the outlet regularly for clogging and clean when necessary (annually).
- Inspect the entire system, including inlet/outlet pipes, restricted outlet structure(s), and water quality structures (two times per year).
- Clean detention system, if its volume has been reduced by more than ten (10) percent due to accumulation of silt and sediment.
- Maintain a record of all maintenance performed on the system for Township inspection upon request.

Storm Sewer Collection Systems

REQUIRED MAINTENANCE:

- Check the outlet regularly for clogging and clean when necessary (annually).
- Inspect entire storm sewer distribution system (two times per year).
- Clean storm sewer structures when accumulation of silt and sediment reaches six (6) inches or greater.
- Clean grates on inlets, outlets, and other storm sewer structures regularly.
- Water channels should be cleaned regularly.
- Maintain a record of all maintenance performed on the system for Township inspection upon request.

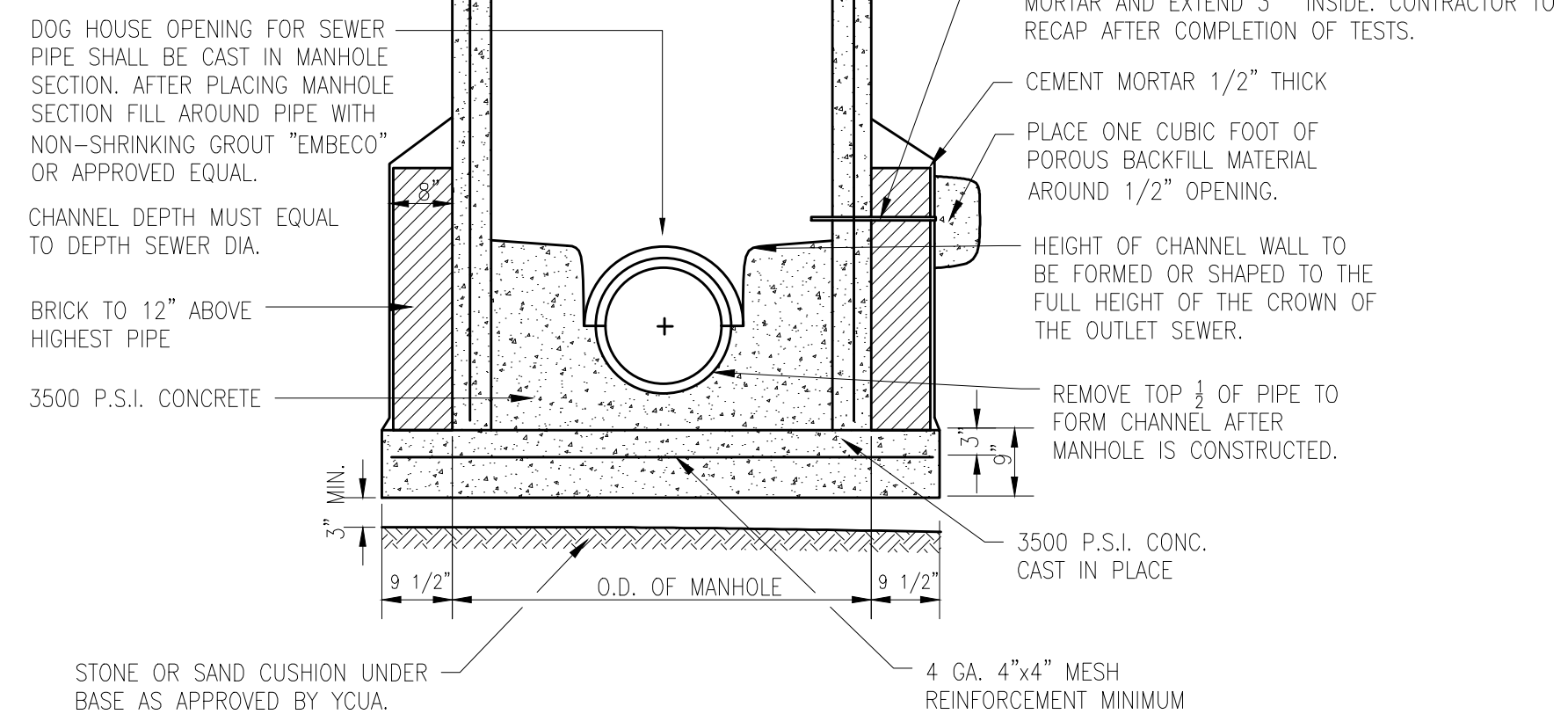
Upon completion of the annual routine inspections, documentation shall be provided to the Charter Township of Ypsilanti.

Mail to: Charter Township of Ypsilanti
7200 S. Huron Drive
Ypsilanti, MI 48197
Attn: Planning and Zoning Department

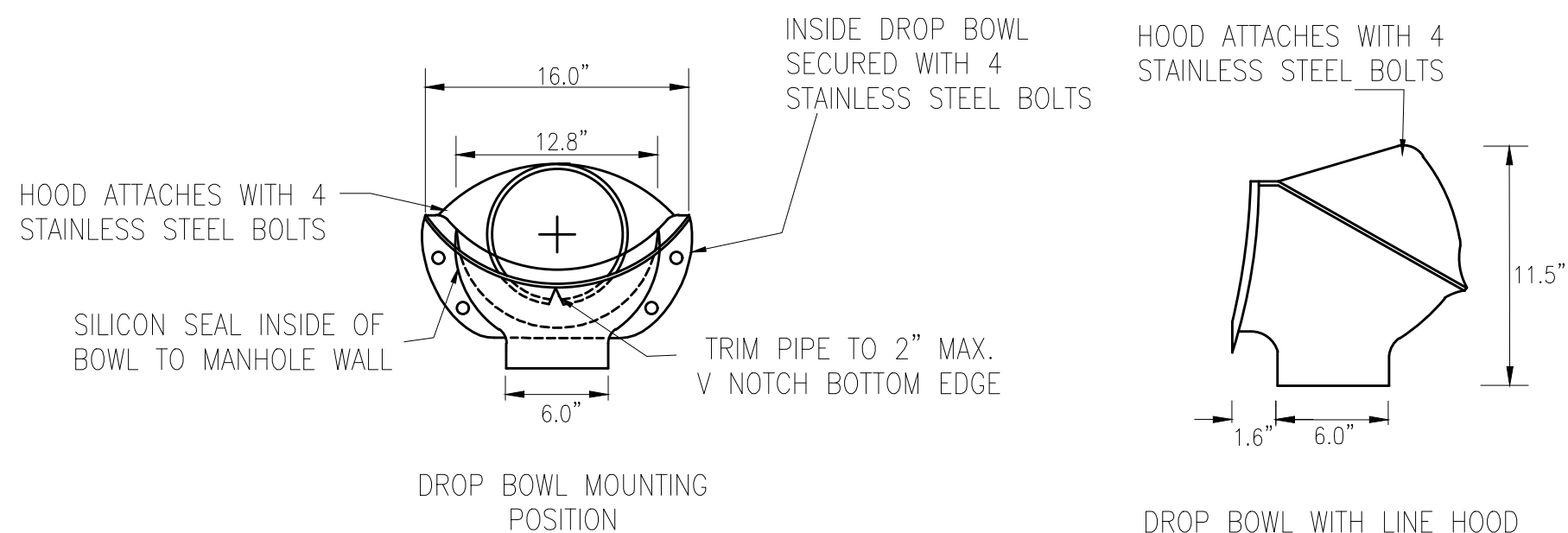
EXHIBIT C

Legal Description of Property

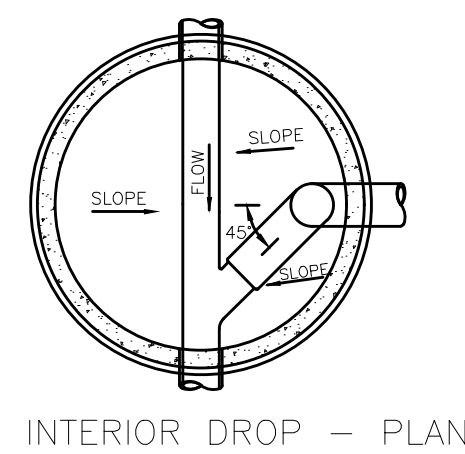
DOG HOUSE CUT OUT SIZES	
SEWER SIZE	MAX. CUT OUT SIZE
8" THRU 10"	17 1/2"
12" THRU 15"	20"



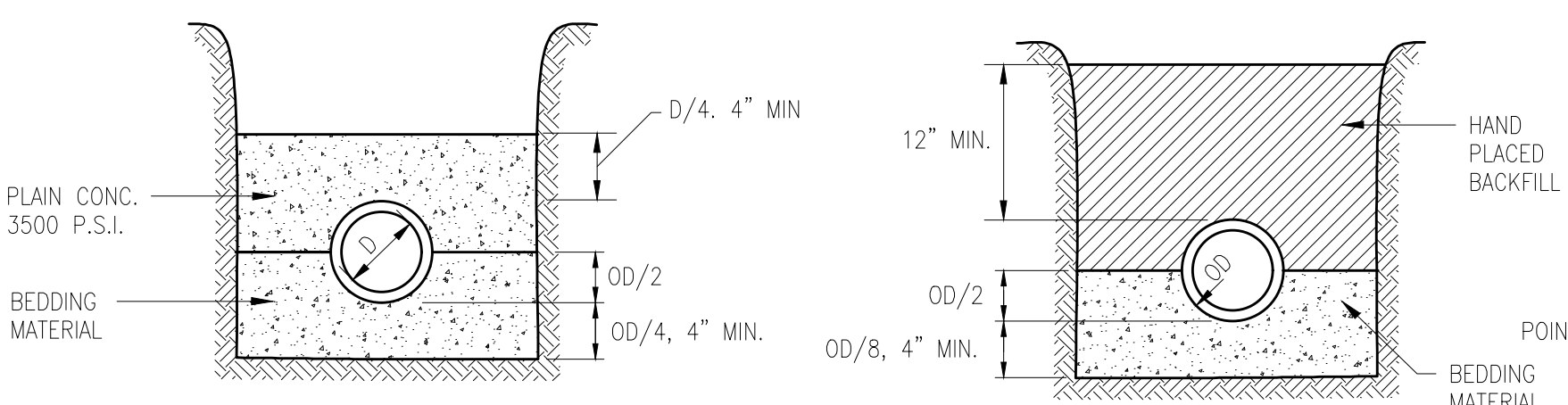
SANITARY MANHOLE
ON EXISTING SEWERS 8" THRU 42"
NOT TO SCALE



DROP BOWL WITH LINE HOOD



INTERIOR DROP - PLAN

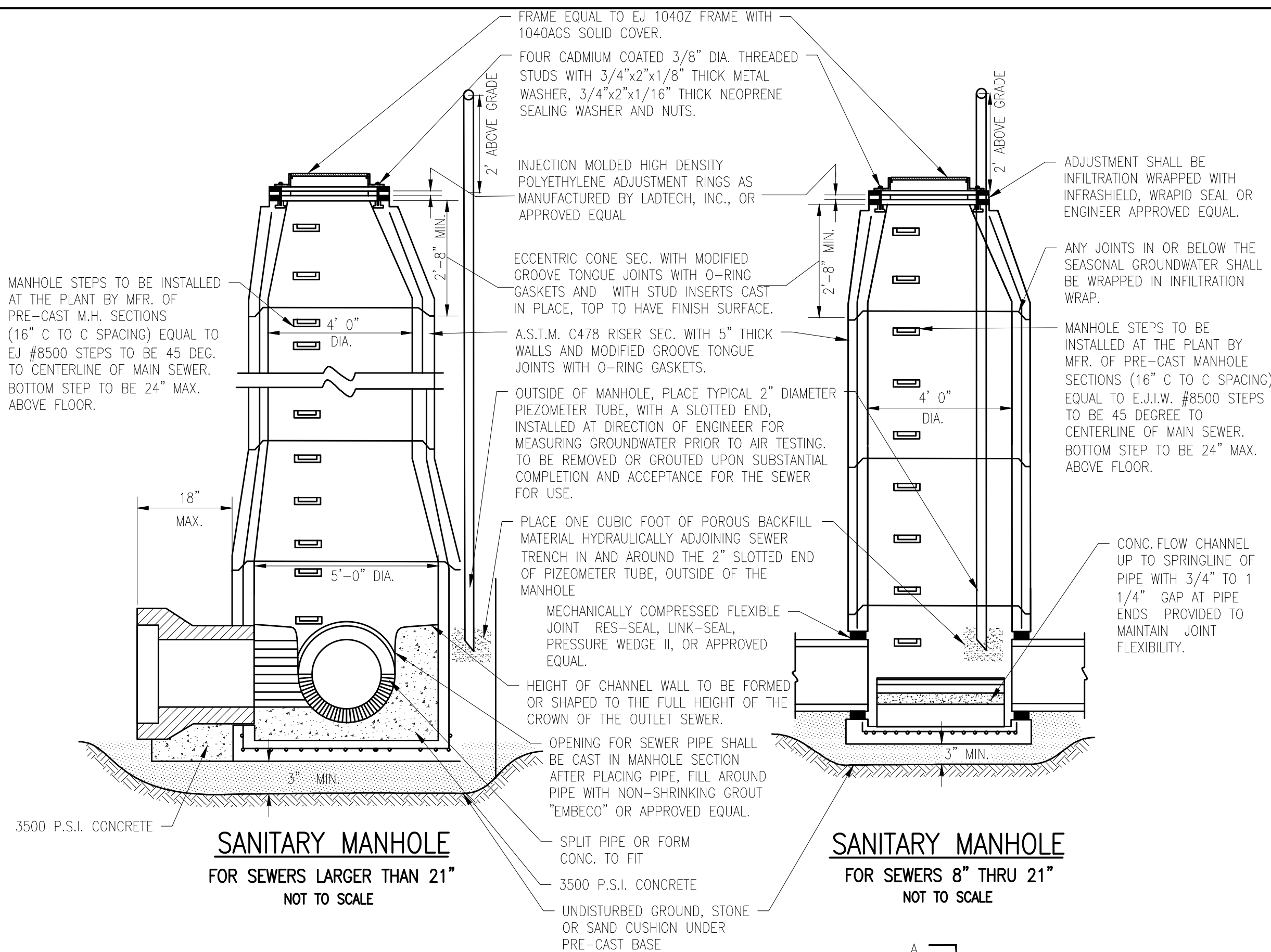


MAX. WIDTH OF TRENCH 12" ABOVE TOP OF PIPE
6" THRU 12" PIPE 30" WIDE
15" THRU 36" PIPE - OD+16"
42" THRU 60" PIPE - OD+20"
OVER 60" PIPE OUTSIDE DIA. OF PIPE+24"
MIN. WIDTH OF TRENCH 12" ABOVE THE TOP OF THE PIPE SHALL BE 6" ON EACH SIDE OF PIPE.

PIPE BEDDING DETAILS

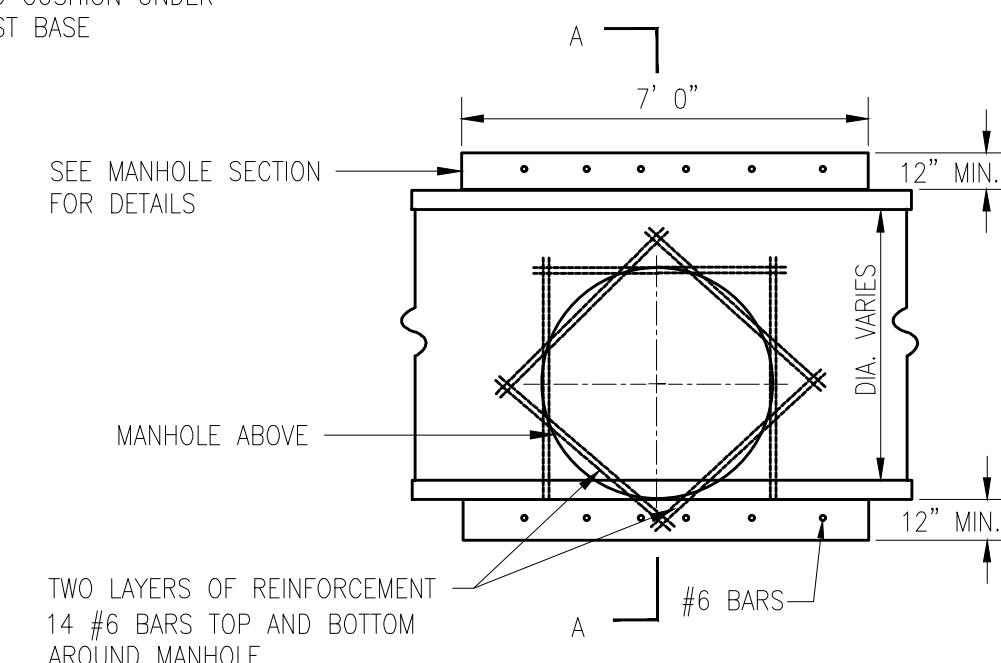
DIA. OF SEWER	DIA. OF DROP CONNECTION
4"	4"
6"	4"
8"	6"
10"	8"

INTERIOR DROP CONNECTION
NOT TO SCALE

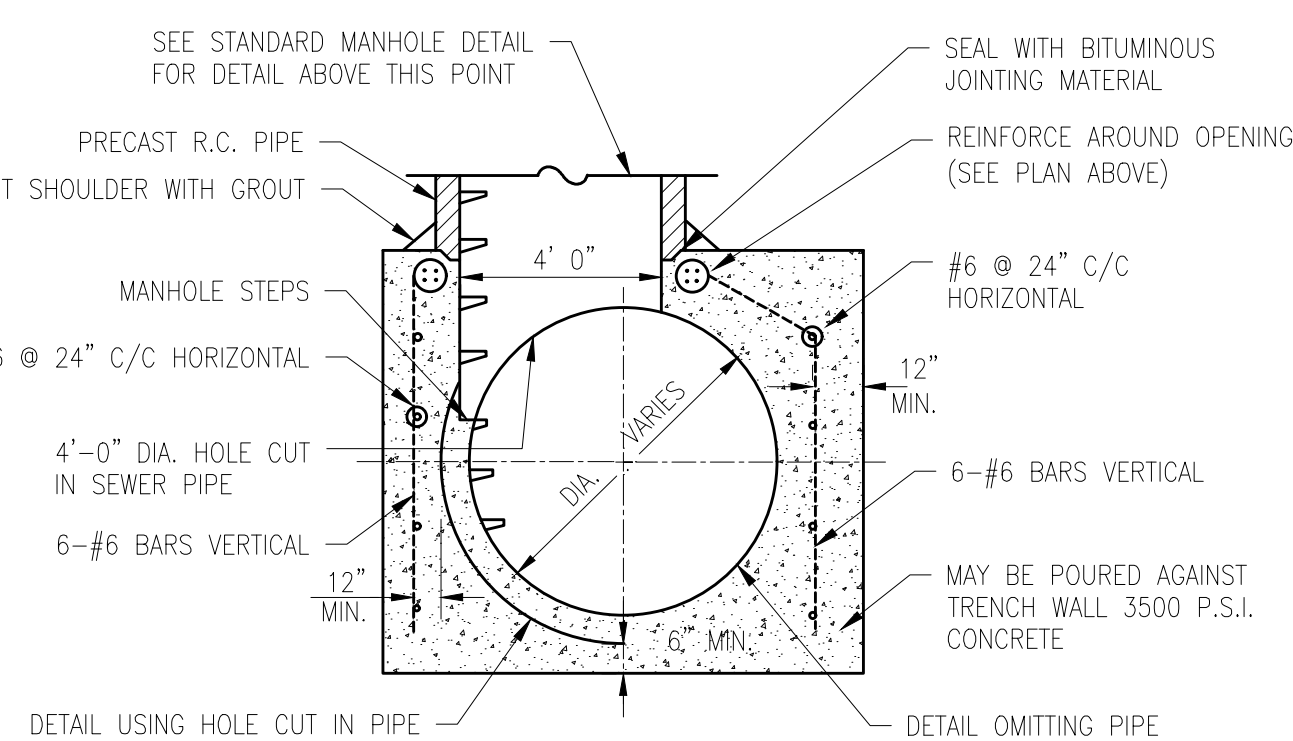


SANITARY MANHOLE
FOR SEWERS LARGER THAN 21"
NOT TO SCALE

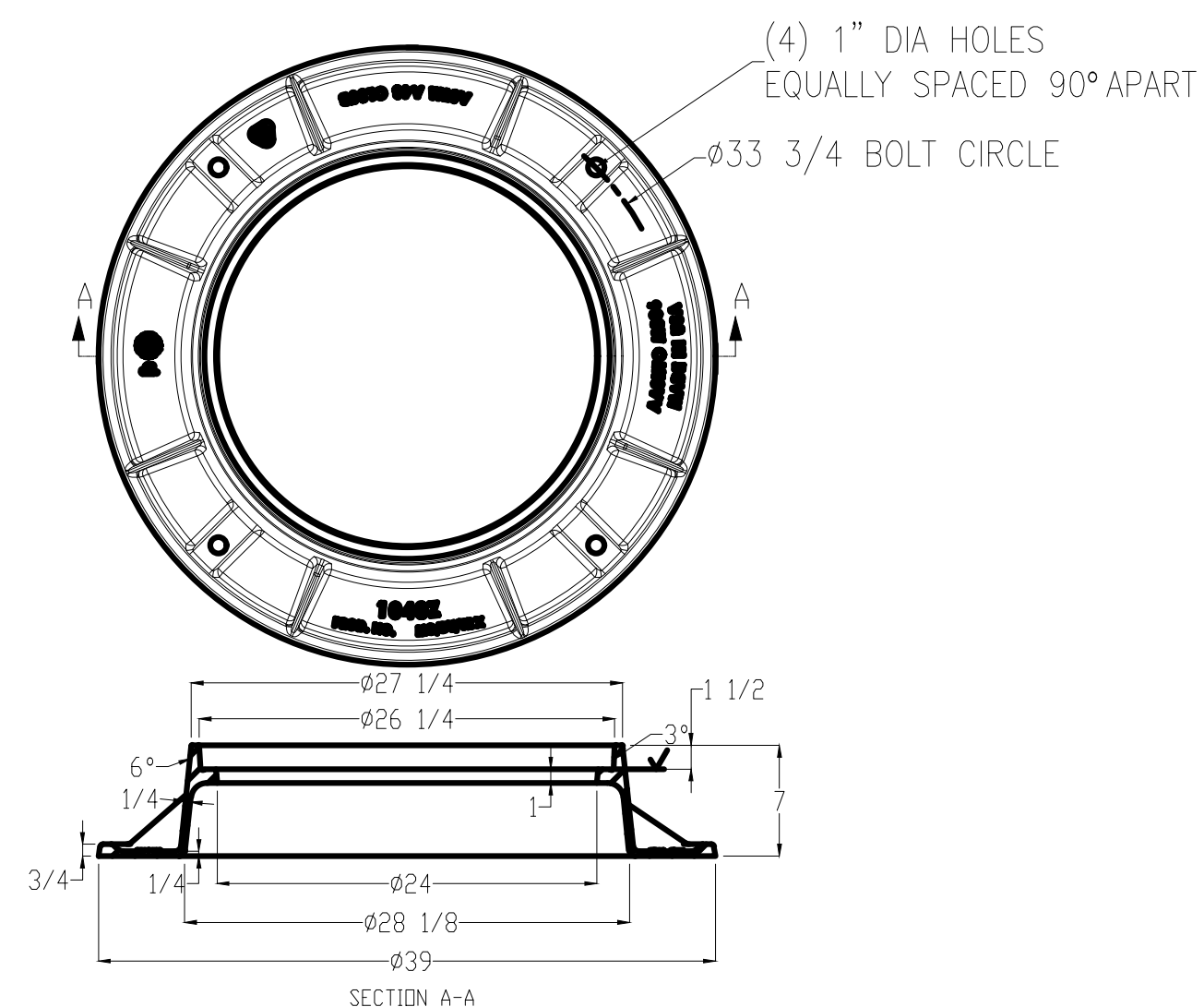
SANITARY MANHOLE
FOR SEWERS 8" THRU 21"
NOT TO SCALE



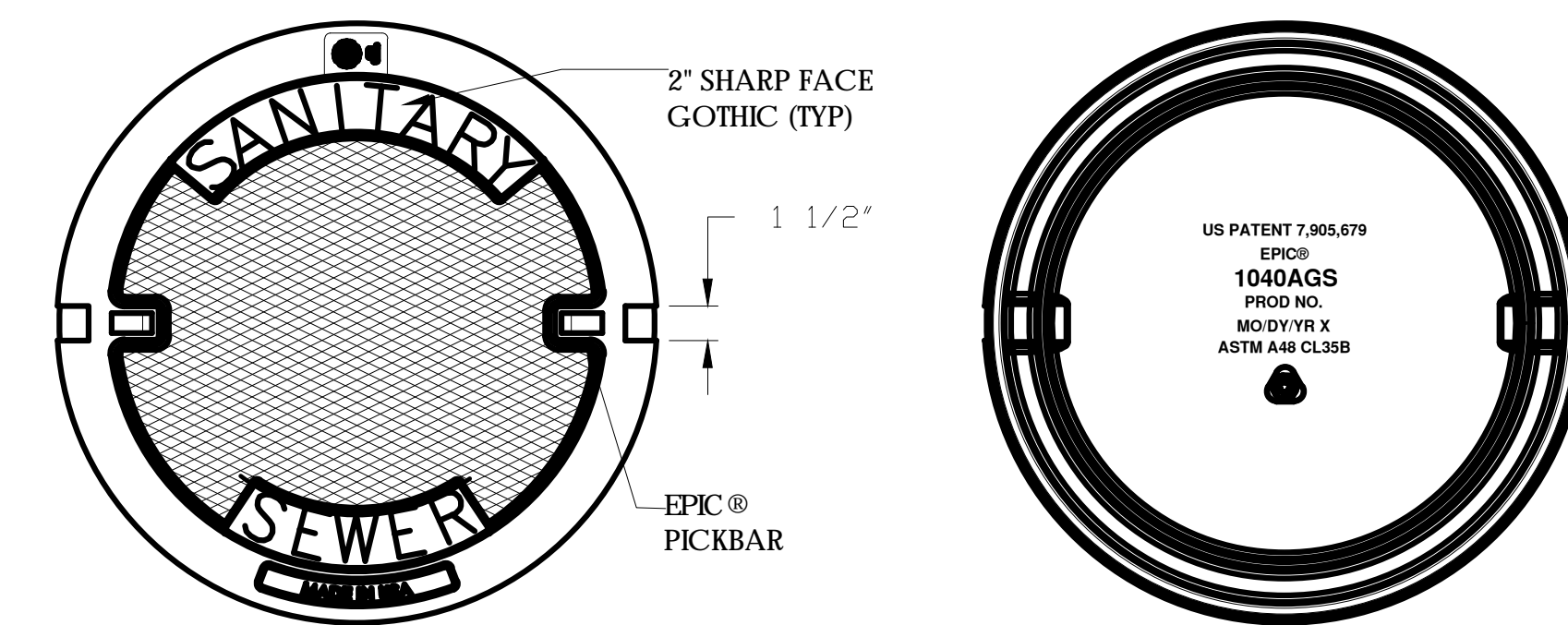
MANHOLE PLAN
48" & LARGER SEWERS
NOT TO SCALE



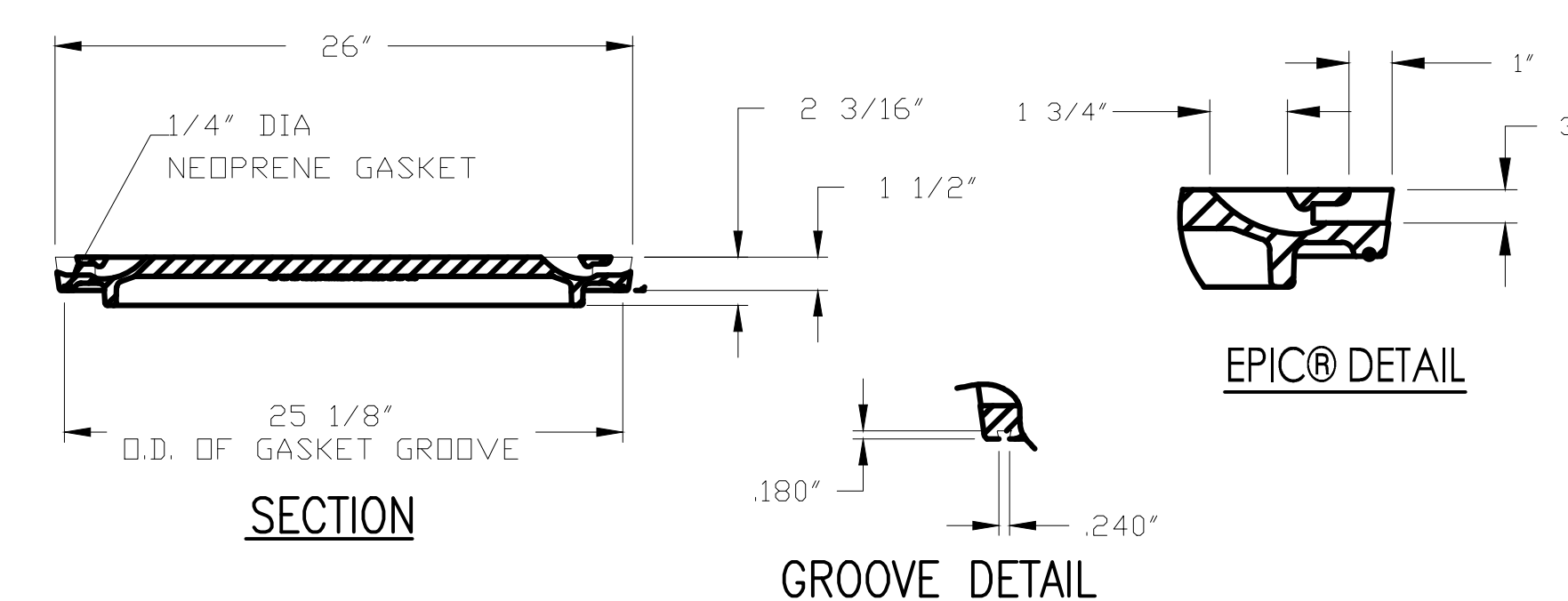
MANHOLE SECTION
48" & LARGER SEWERS
NOT TO SCALE



1040Z FRAME



BOTTOM VIEW



SECTION

GROOVE DETAIL

1040 AGS COVER



Know what's below.
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REVISIONS

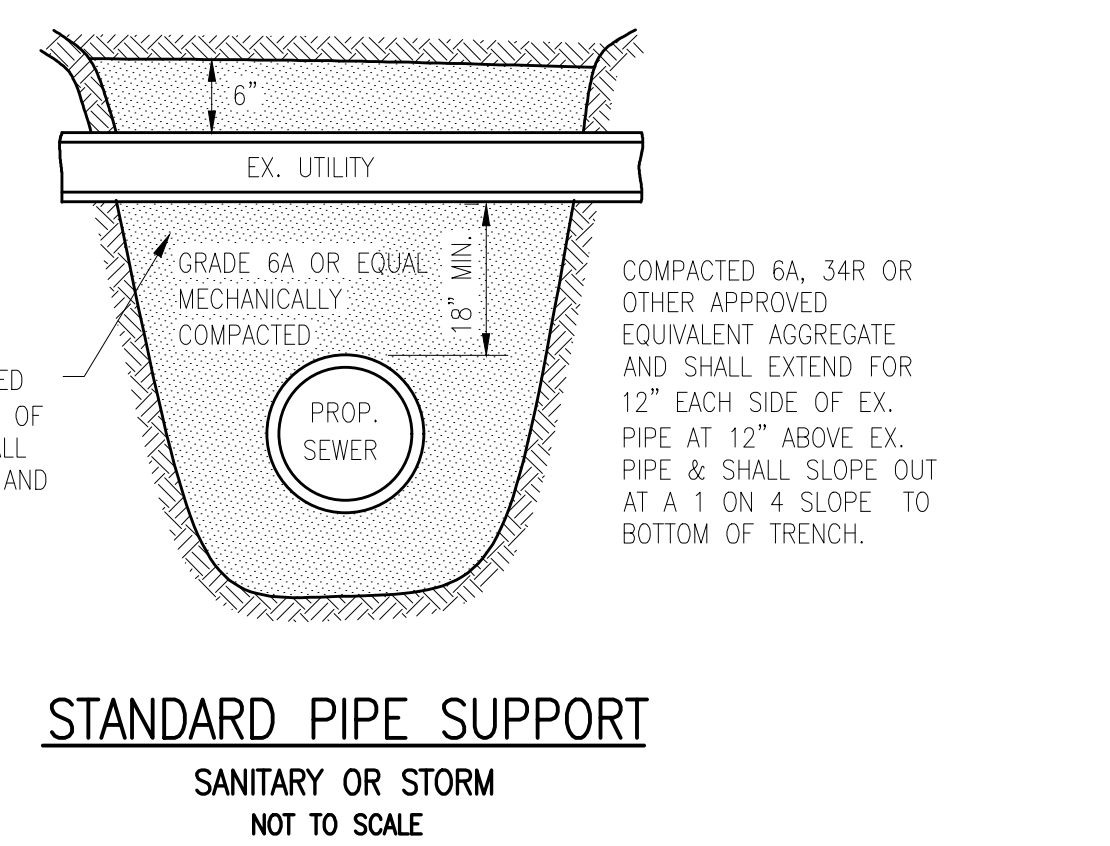
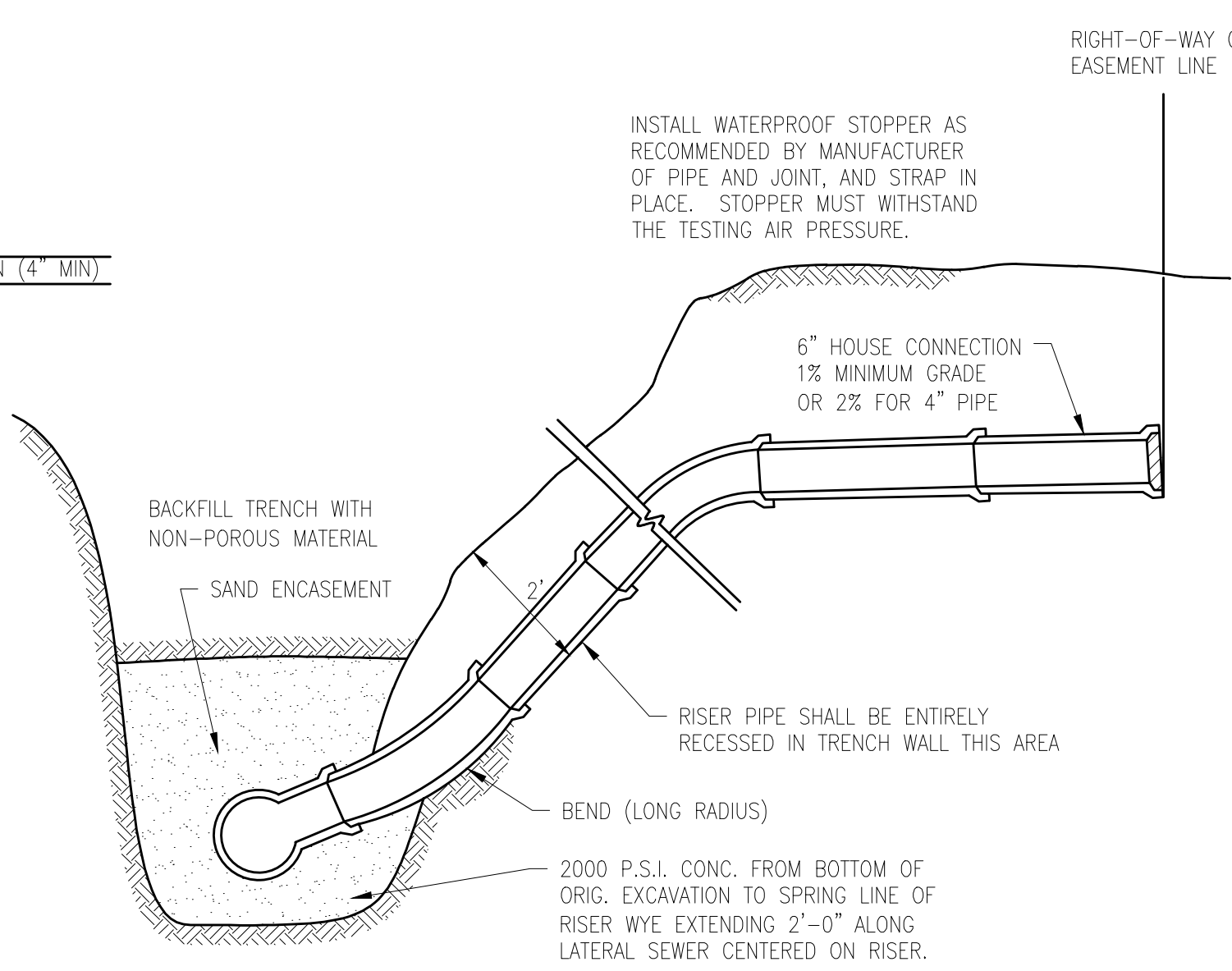
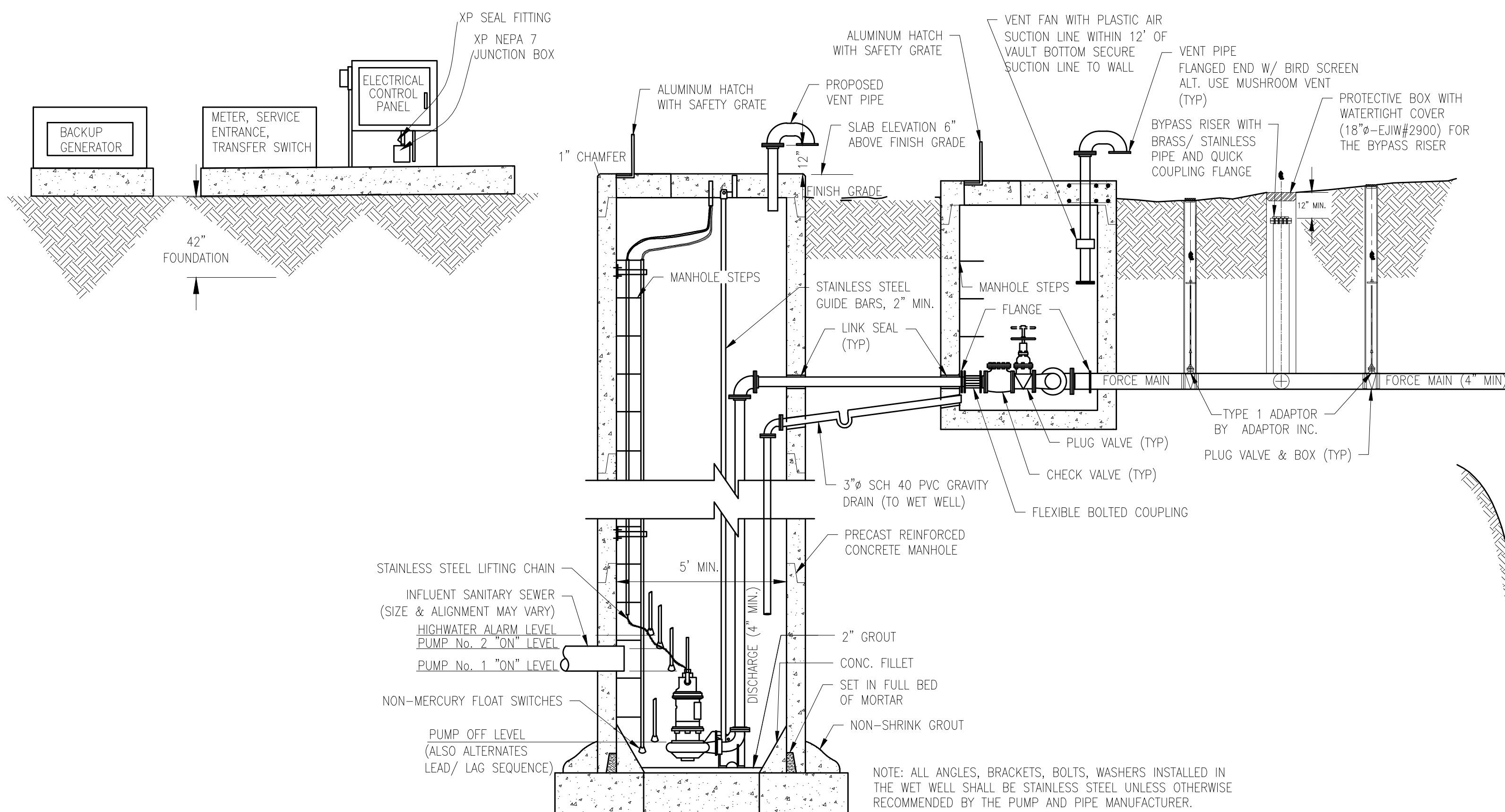
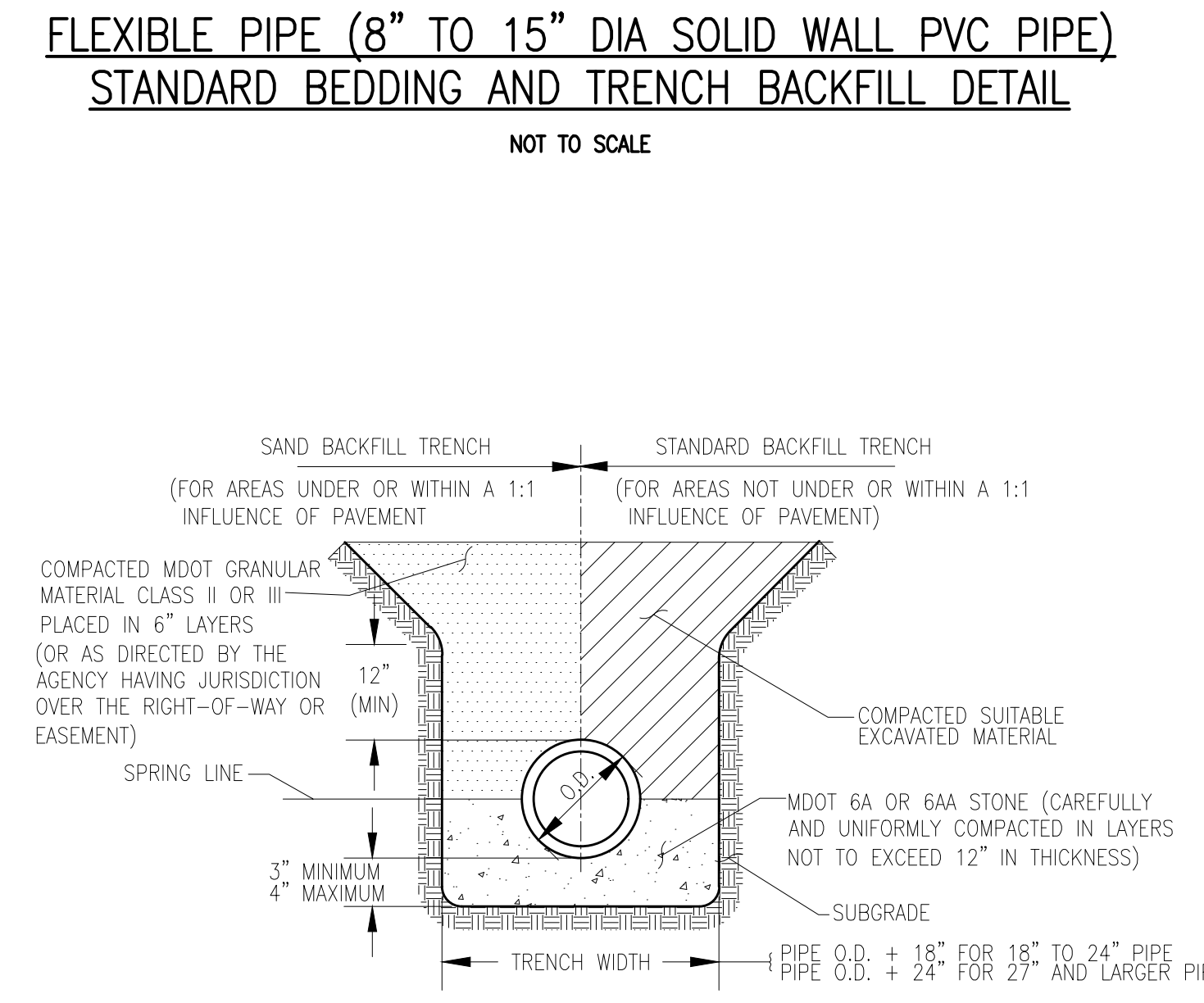
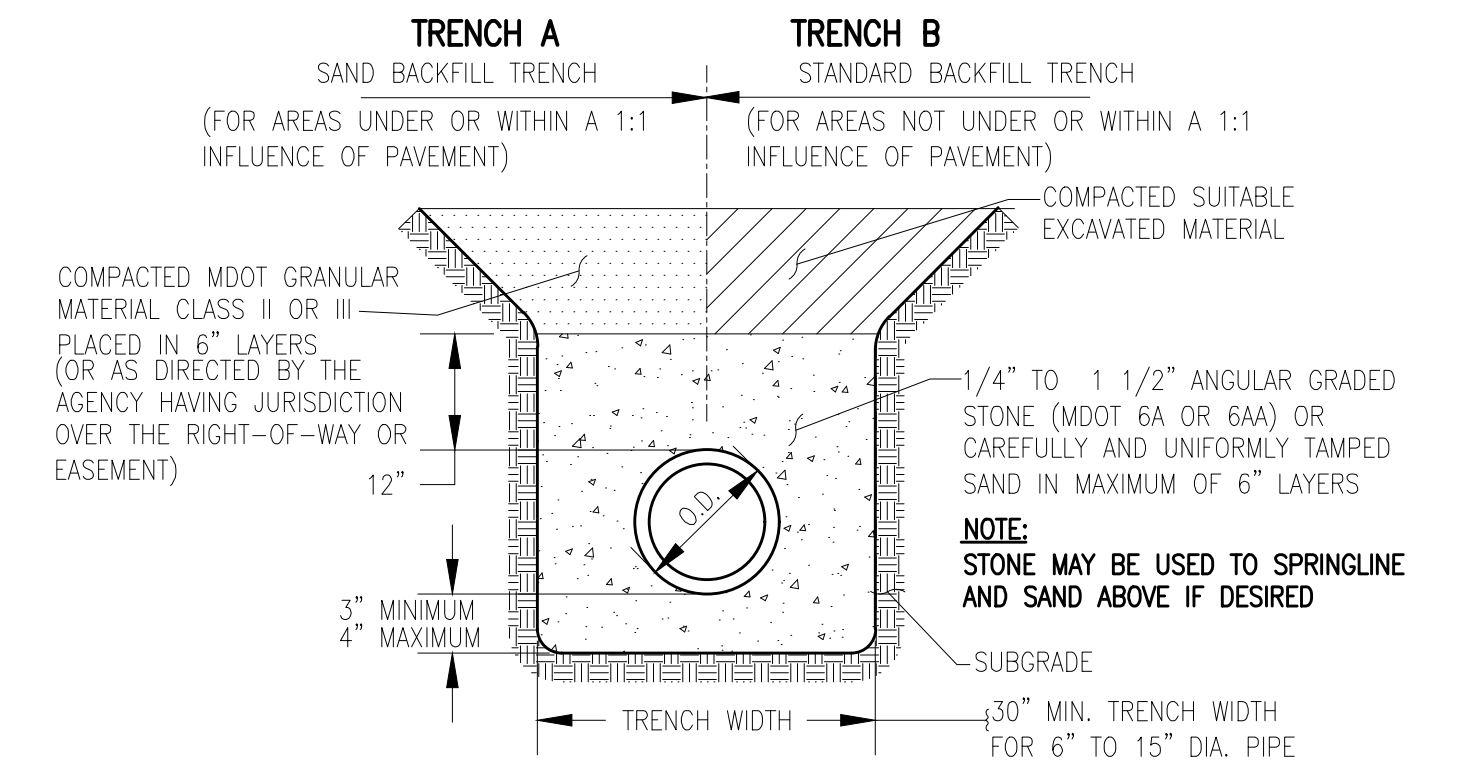
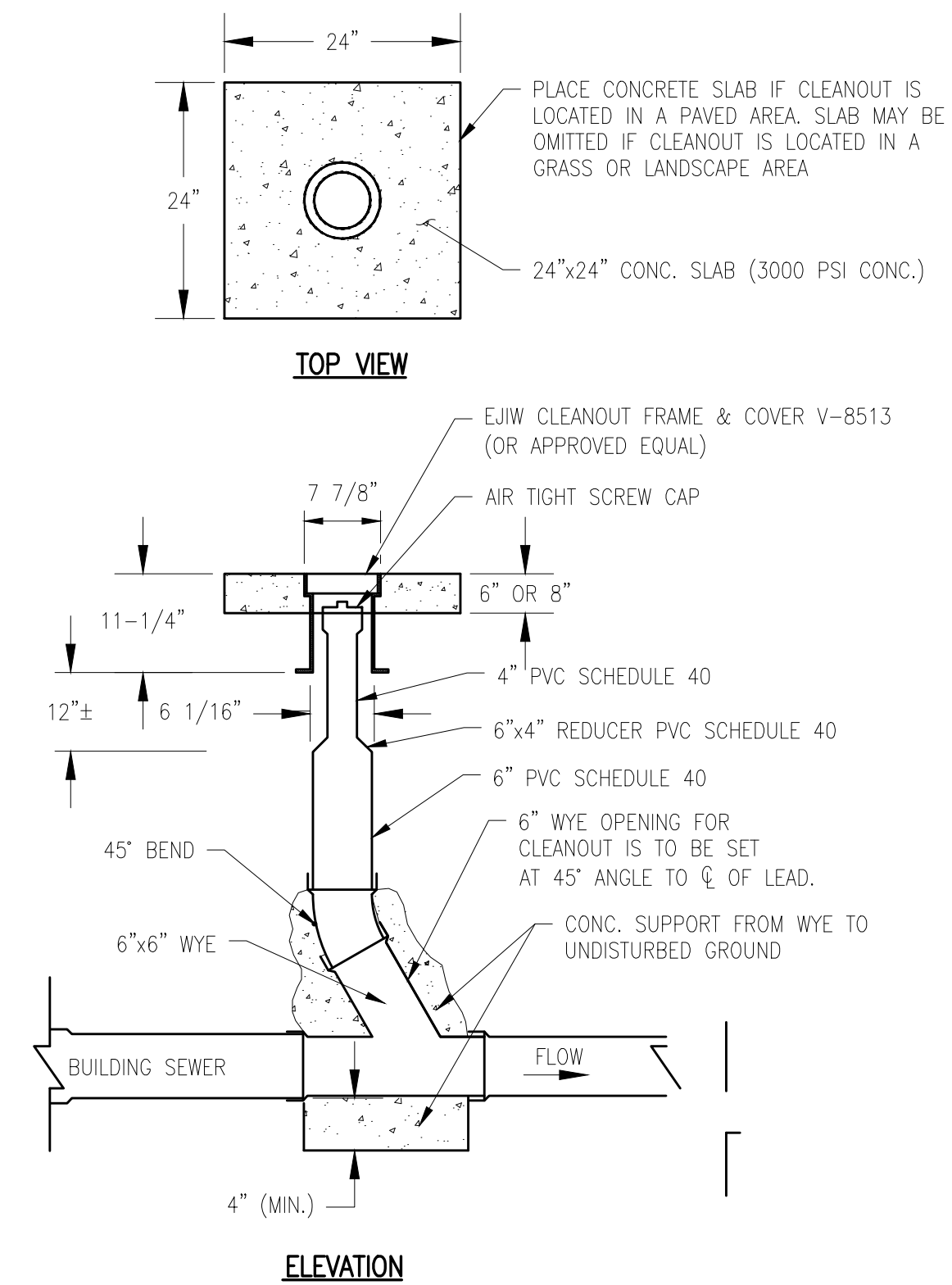
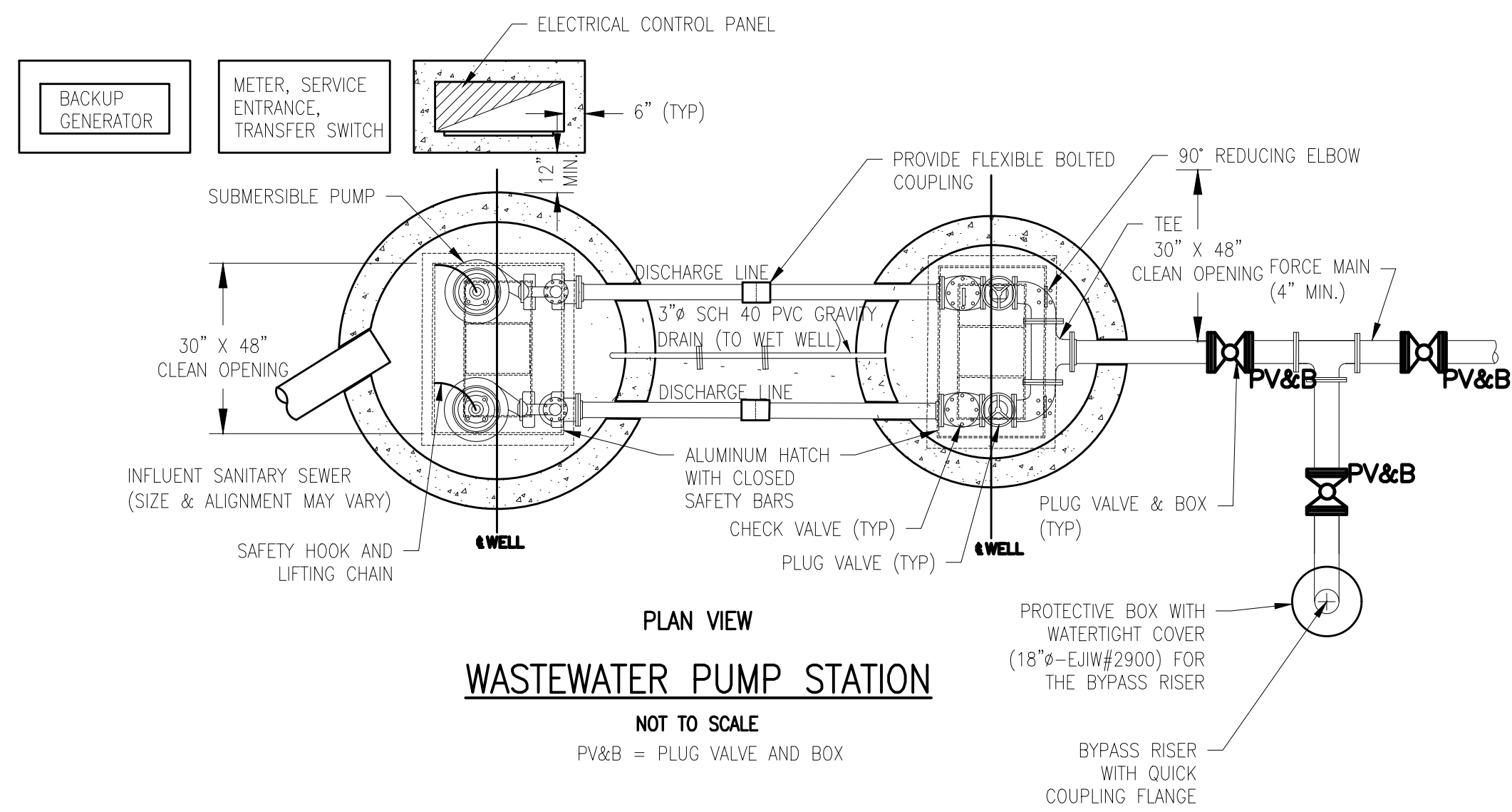
STANDARD SANITARY
SEWER DETAILS

YPSILANTI COMMUNITY UTILITIES AUTHORITY
2777 STATE ROAD
YPSILANTI, MICHIGAN 48198-9112
(734) 484-4800
FAX: (734) 544-7221
WWW.YCUA.ORG

YCUA
ENVIRONMENTAL LEADERS

DATE	SCALE	SHEET
10/25/19	NO SCALE	

ALL DRAWINGS AND WRITTEN MATERIALS APPEARING HEREIN CONSTITUTE THE ORIGINAL AND UNPUBLISHED WORK OF YCUA AND THE SAME MAY NOT BE DUPLICATED, DISTRIBUTED, OR DISCLOSED WITHOUT PRIOR WRITTEN CONSENT OF YCUA.



DETAILS ARE FOR LAYOUT AND GENERALITIES ONLY. THE SPECIFIC COMPONENTS AND EXACT DETAILS MUST BE IDENTIFIED OR CREATED ON A CASE BY CASE BASIS THROUGH A DETAILED SUBMITTAL REVIEW PROCESS.



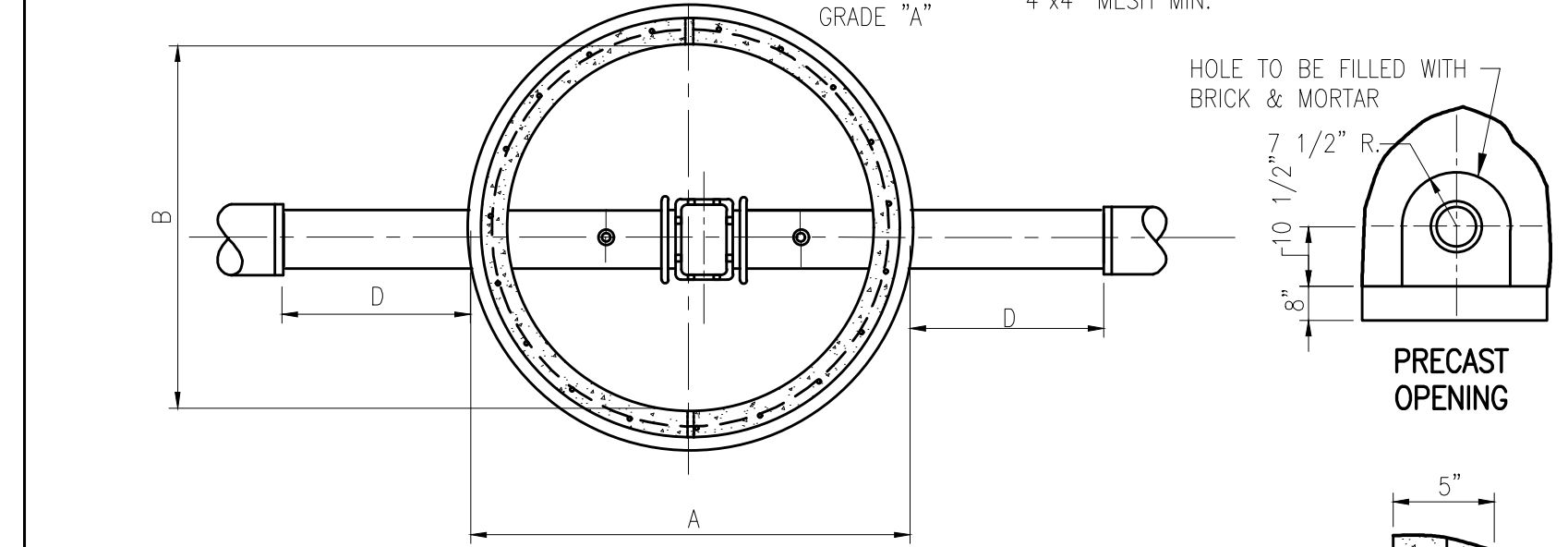
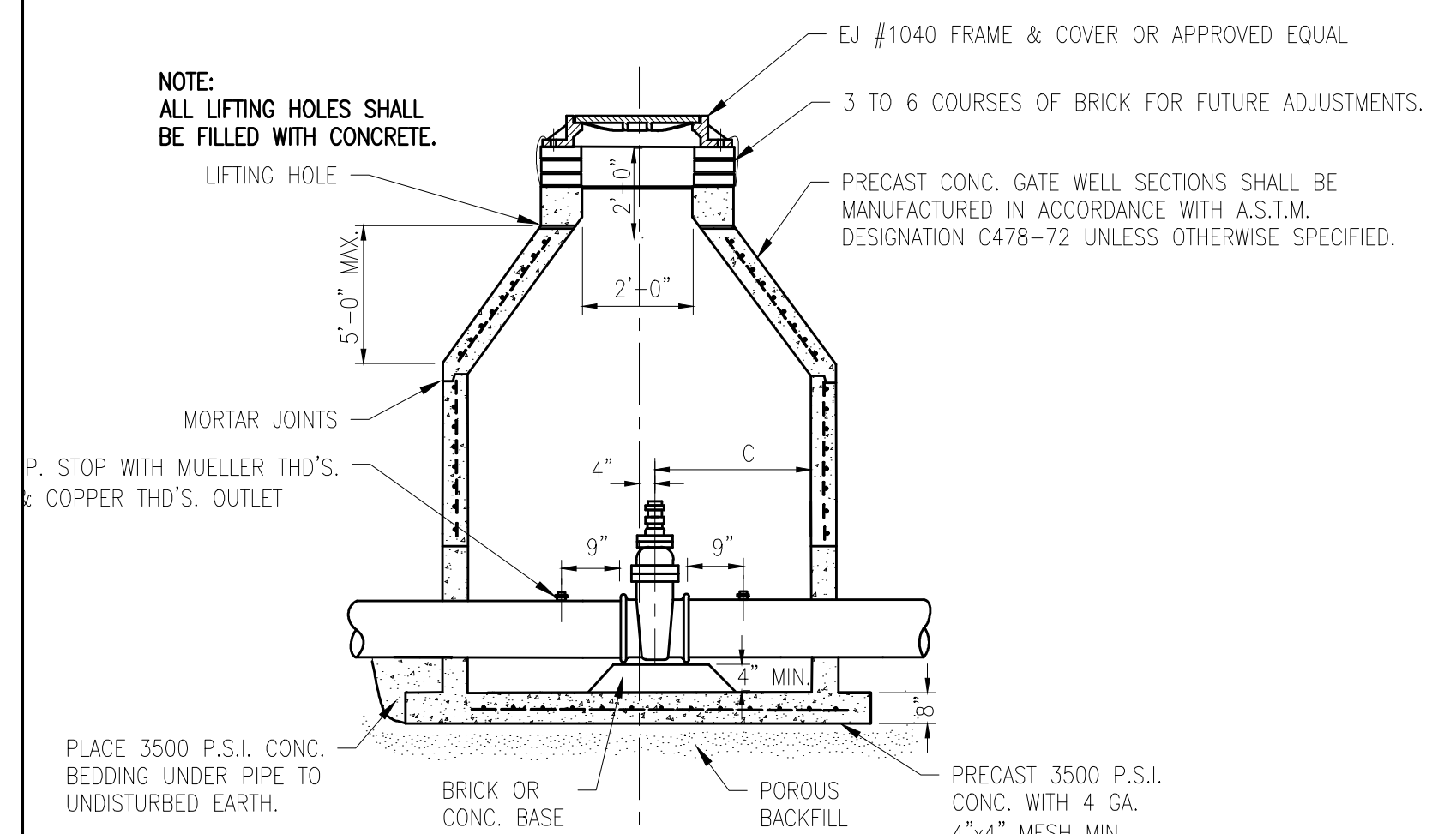
REVISIONS

ALL DRAWINGS AND WRITTEN MATERIALS APPEARING HEREIN CONSTITUTE THE ORIGINAL AND UNPUBLISHED WORK OF YCA AND THE SAME MAY NOT BE DUPLICATED, DISTRIBUTED, OR DISCLOSED WITHOUT PRIOR WRITTEN CONSENT OF YCA.

STANDARD SANITARY SEWER DETAILS		
DATE	SCALE	SHEET
10/25/19	NO SCALE	

YPSILANTI COMMUNITY UTILITIES AUTHORITY
2777 STATE ROAD
YPSILANTI, MICHIGAN 48198-9112
(734) 484-4800
FAX: (734) 544-7221
WWW.YCA.ORG

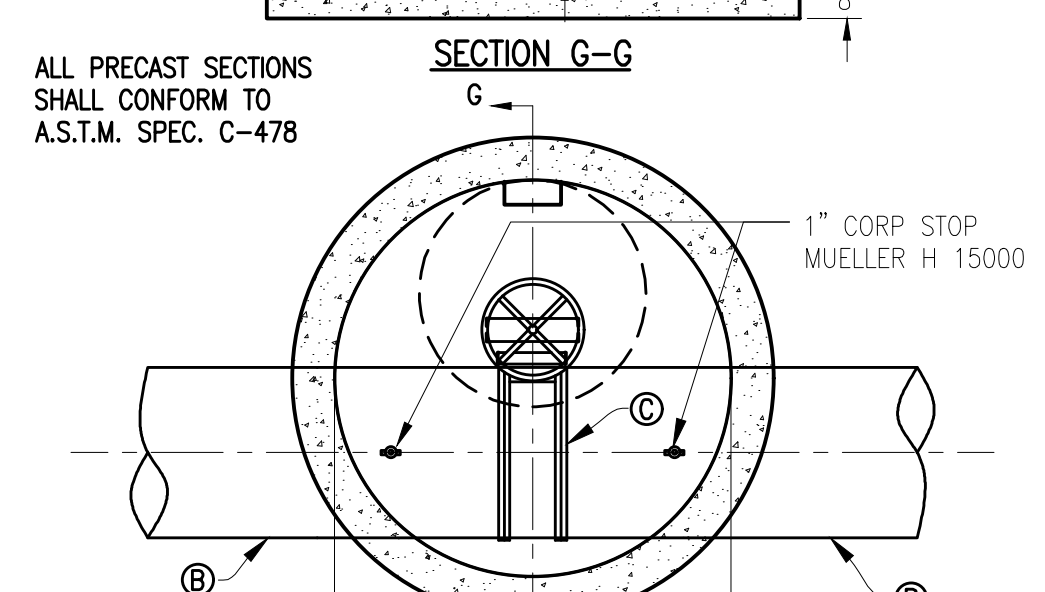
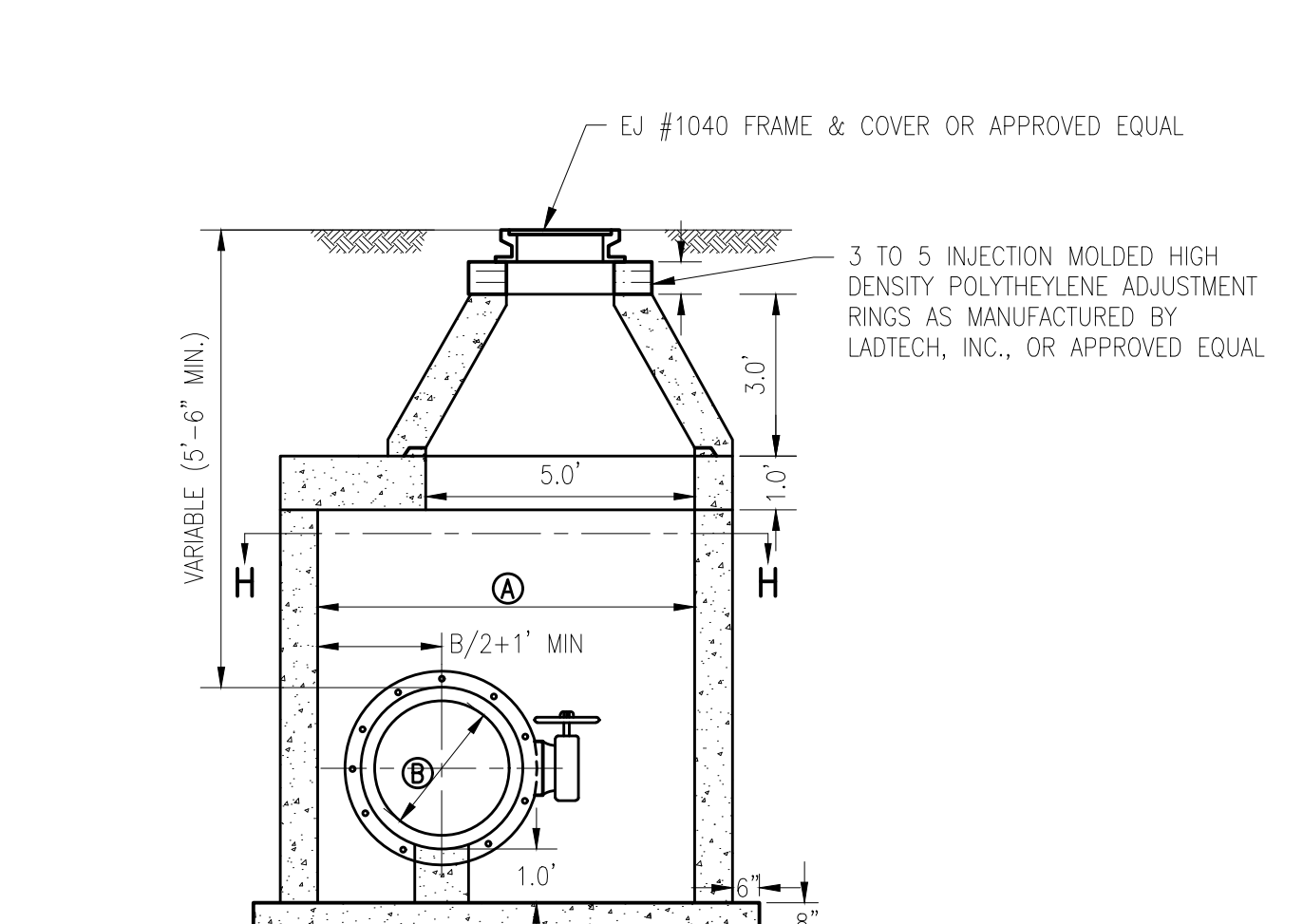
YCA
ENVIRONMENTAL LEADERS



SIZE	A	B	C	D
8"	5'-0"	4'-0"	2'-2"	—
12"	5'-6"	4'-6"	2'-5"	—
16"	6'-0"	5'-6"	2'-8"	3'-0" MIN. * 13'-0" MAX.

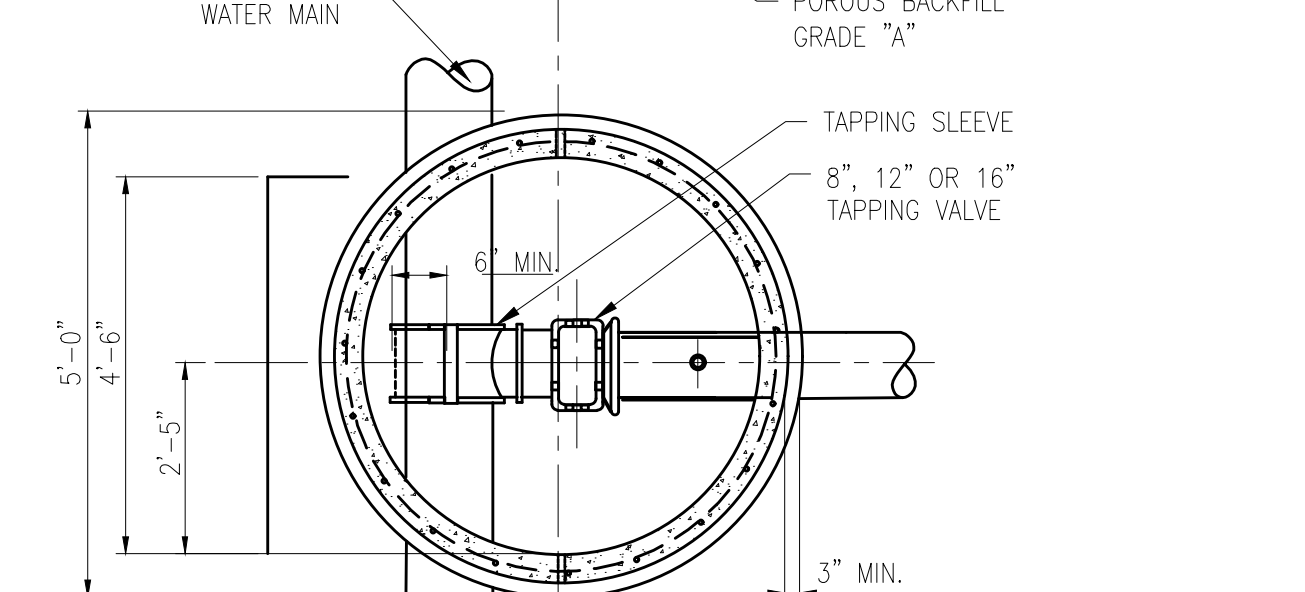
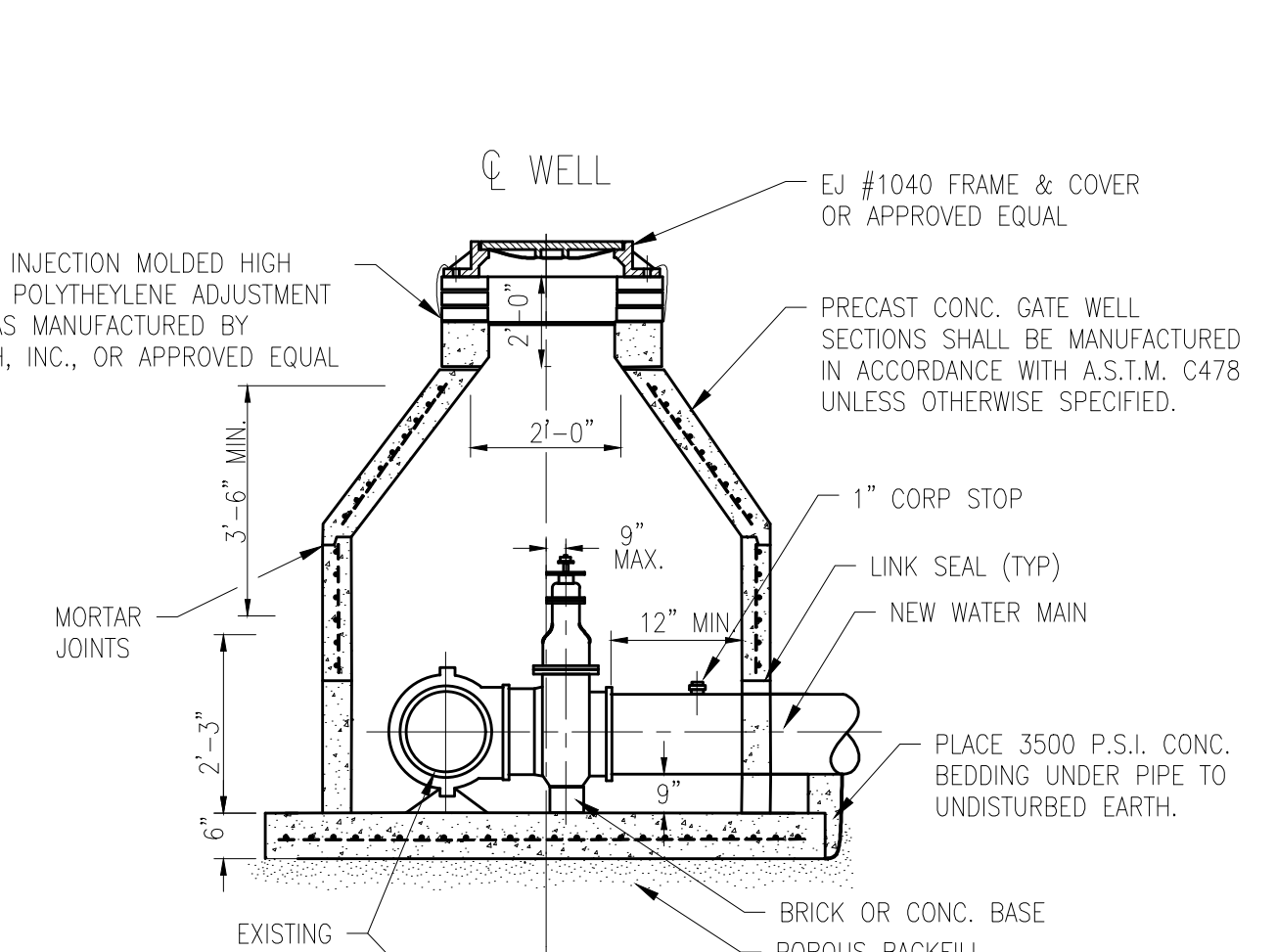
STANDARD PRECAST GATE VALVE & WELL (CONCENTRIC)

* DUCTILE IRON PIPE

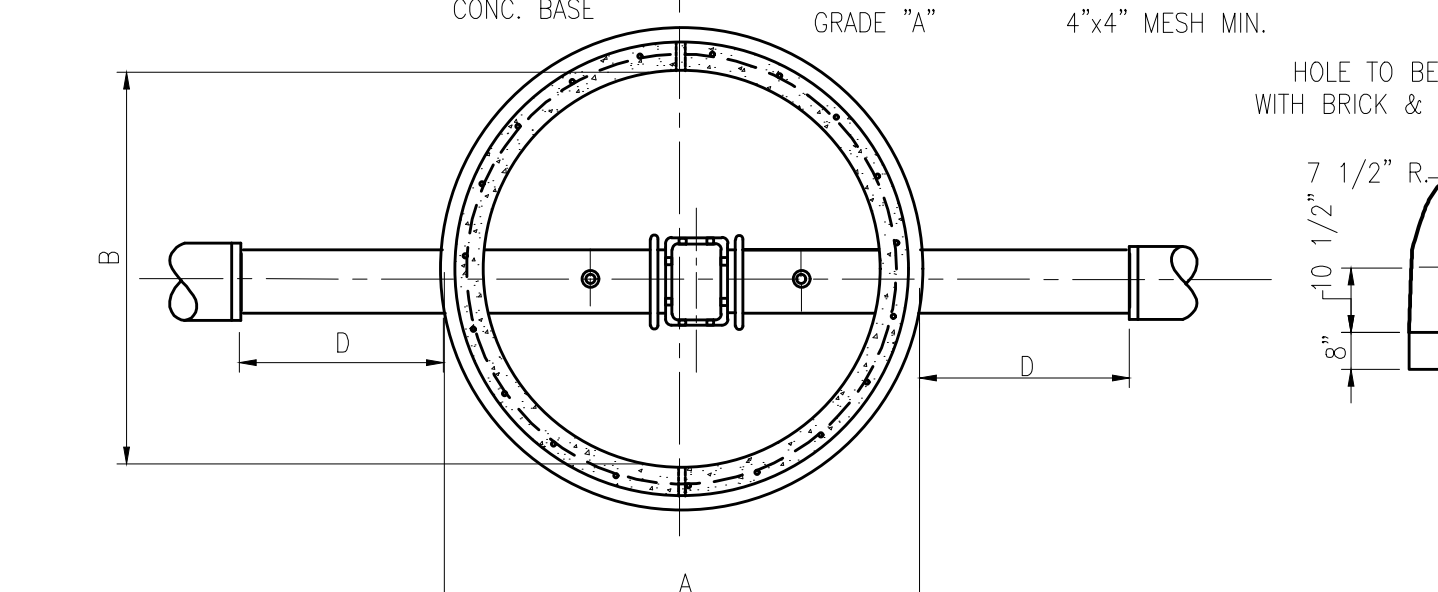
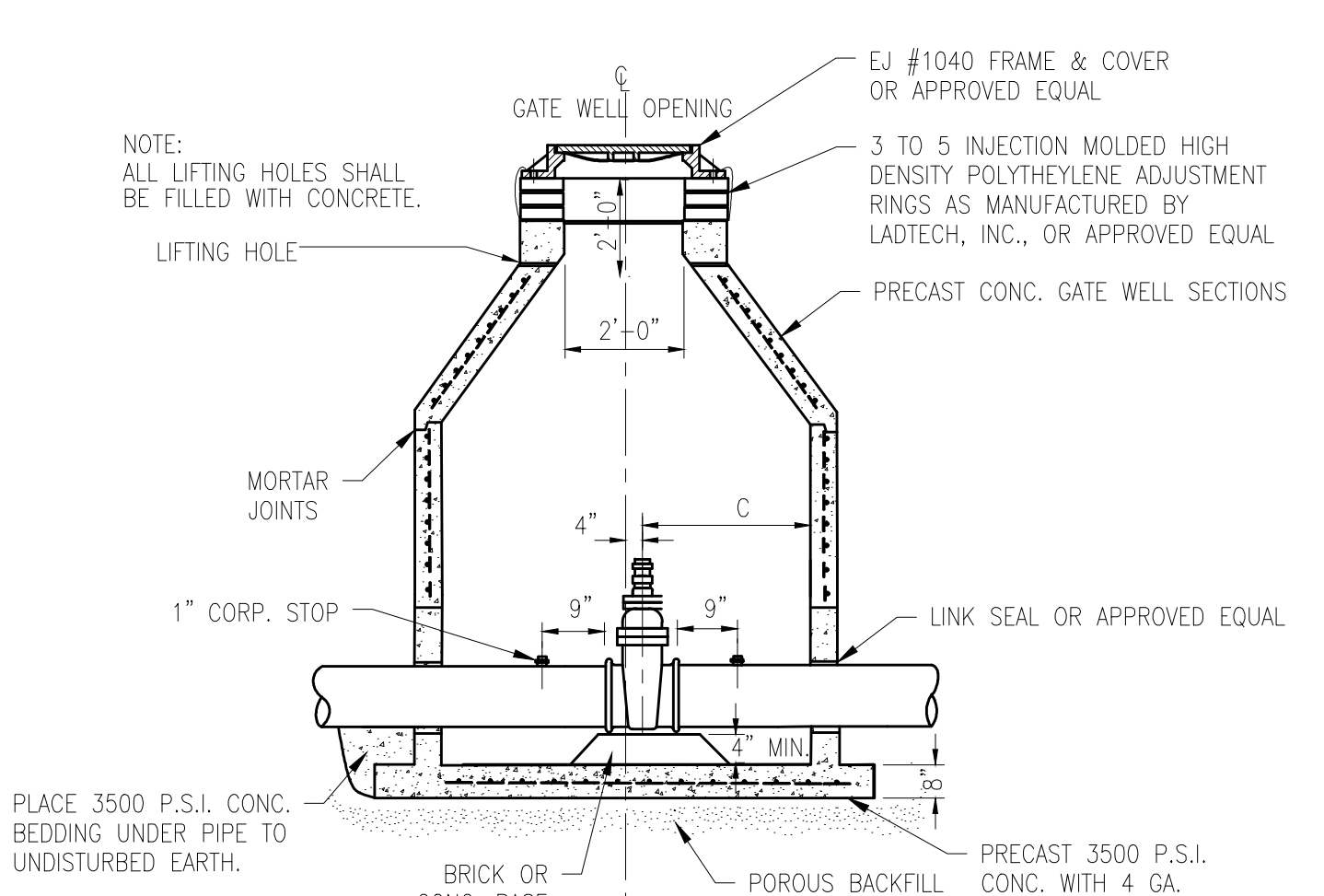


BUTTERFLY VALVE AND WELL (CONCENTRIC)
NOT TO SCALE

A	B
DIA WELL	DIA MAIN
7'-0"	20"
7'-0"	24"
8'-0"	30"
8'-0"	36"



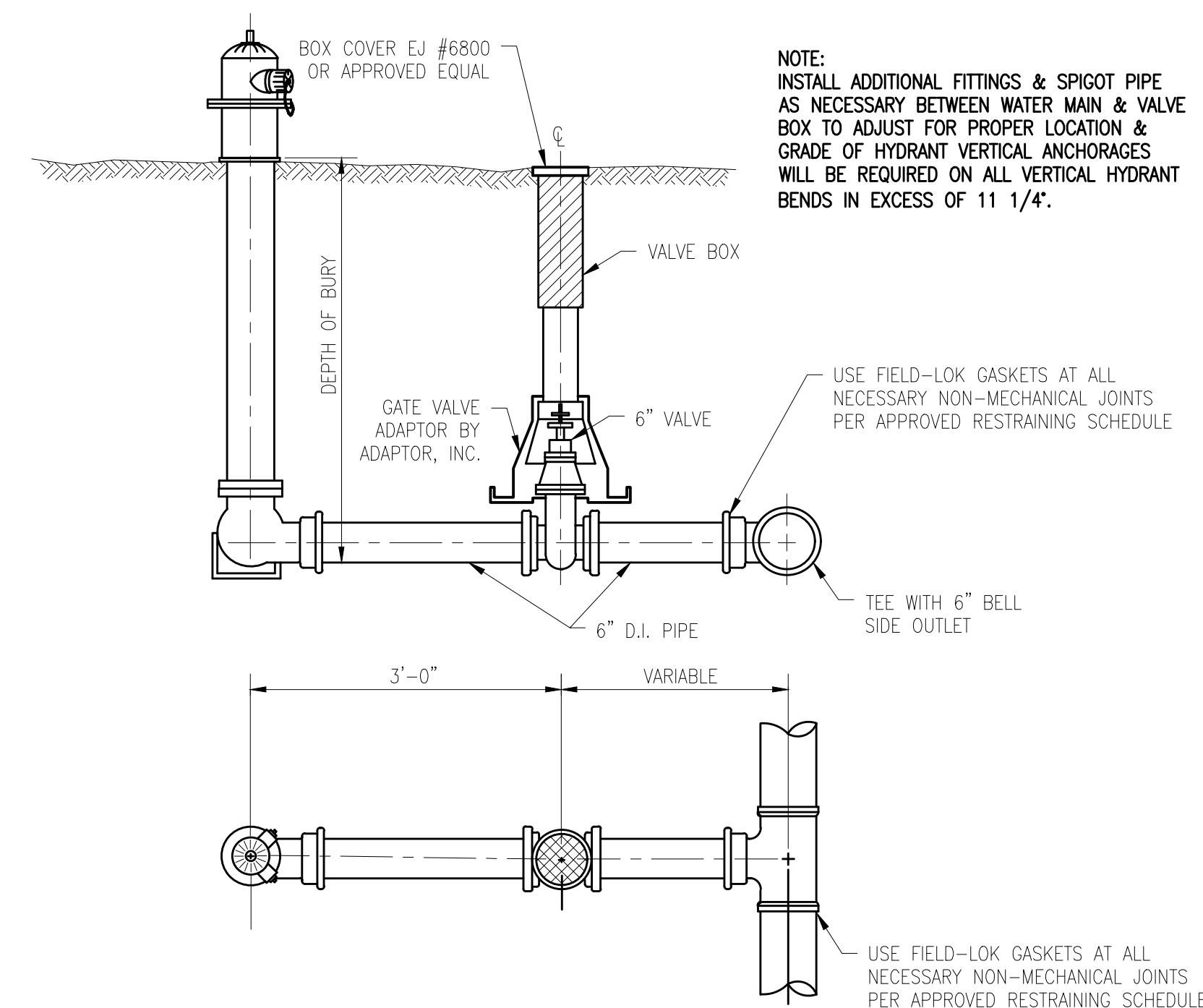
TAPPING SLEEVE, VALVE & WELL (CONCENTRIC)
NOT TO SCALE



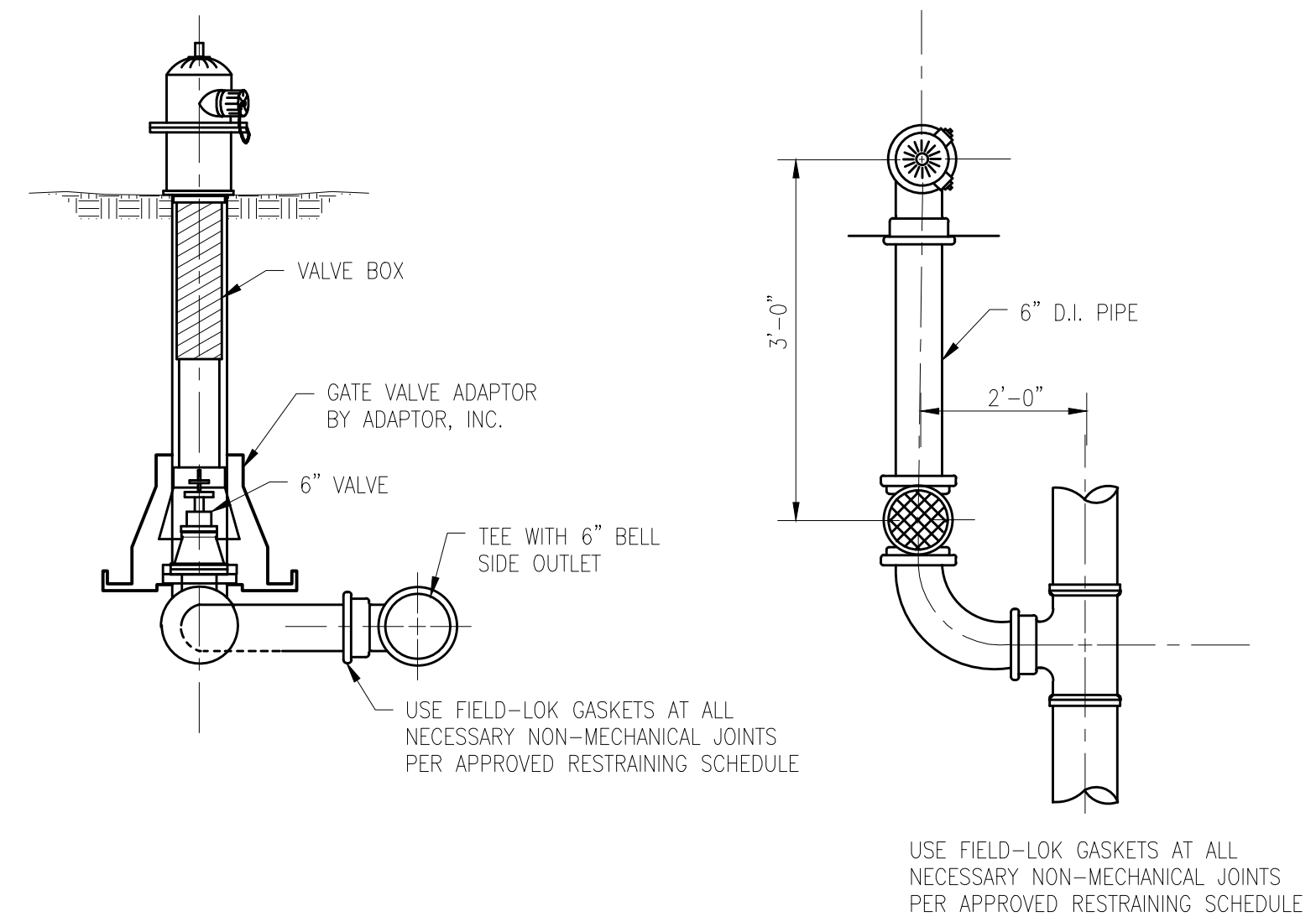
WM	A	B	C	D
8"	5'-0"	4'-0"	2'-2"	—
12"	5'-6"	4'-6"	2'-5"	—
16"	6'-0"	5'-6"	2'-8"	3'-0" MIN. * 13'-0" MAX.

GATE VALVE & WELL (CONCENTRIC)
NOT TO SCALE

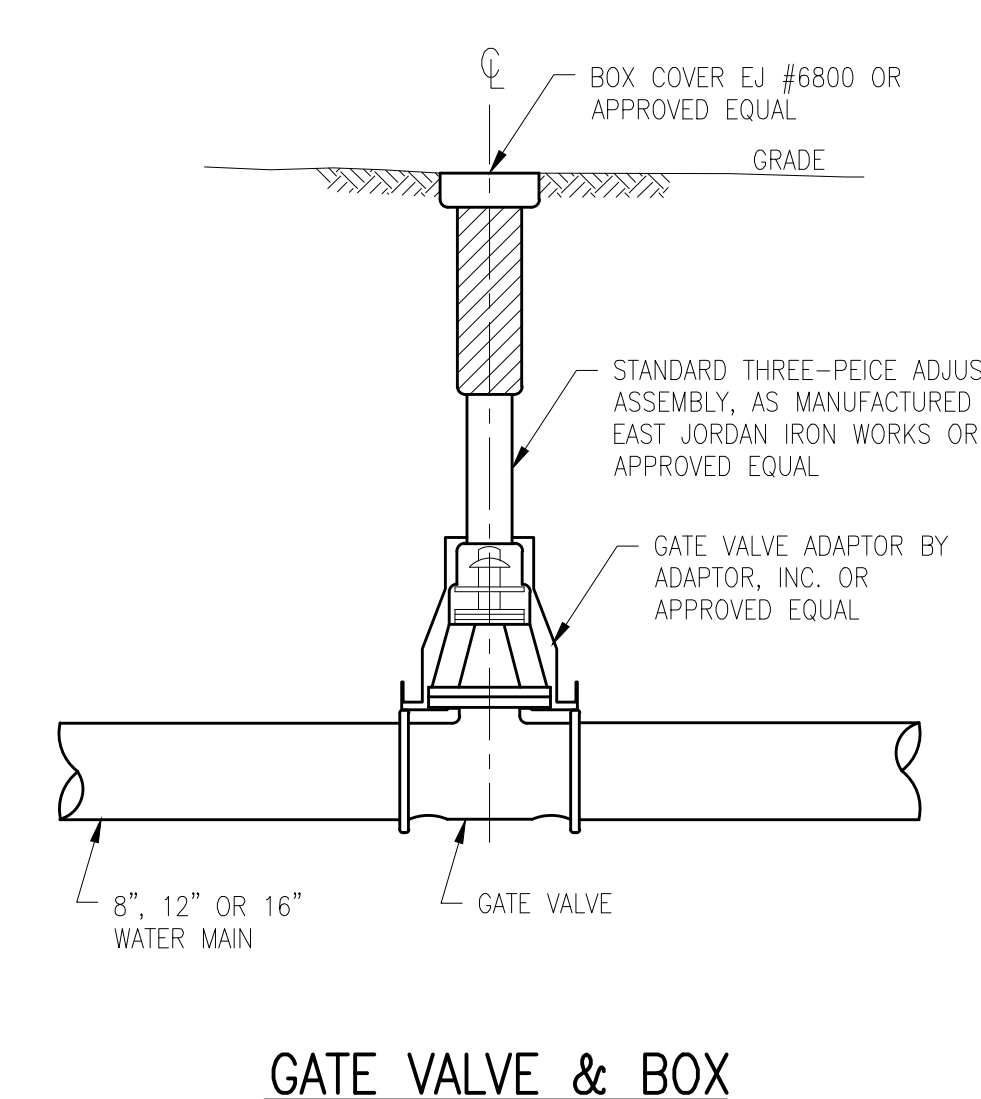
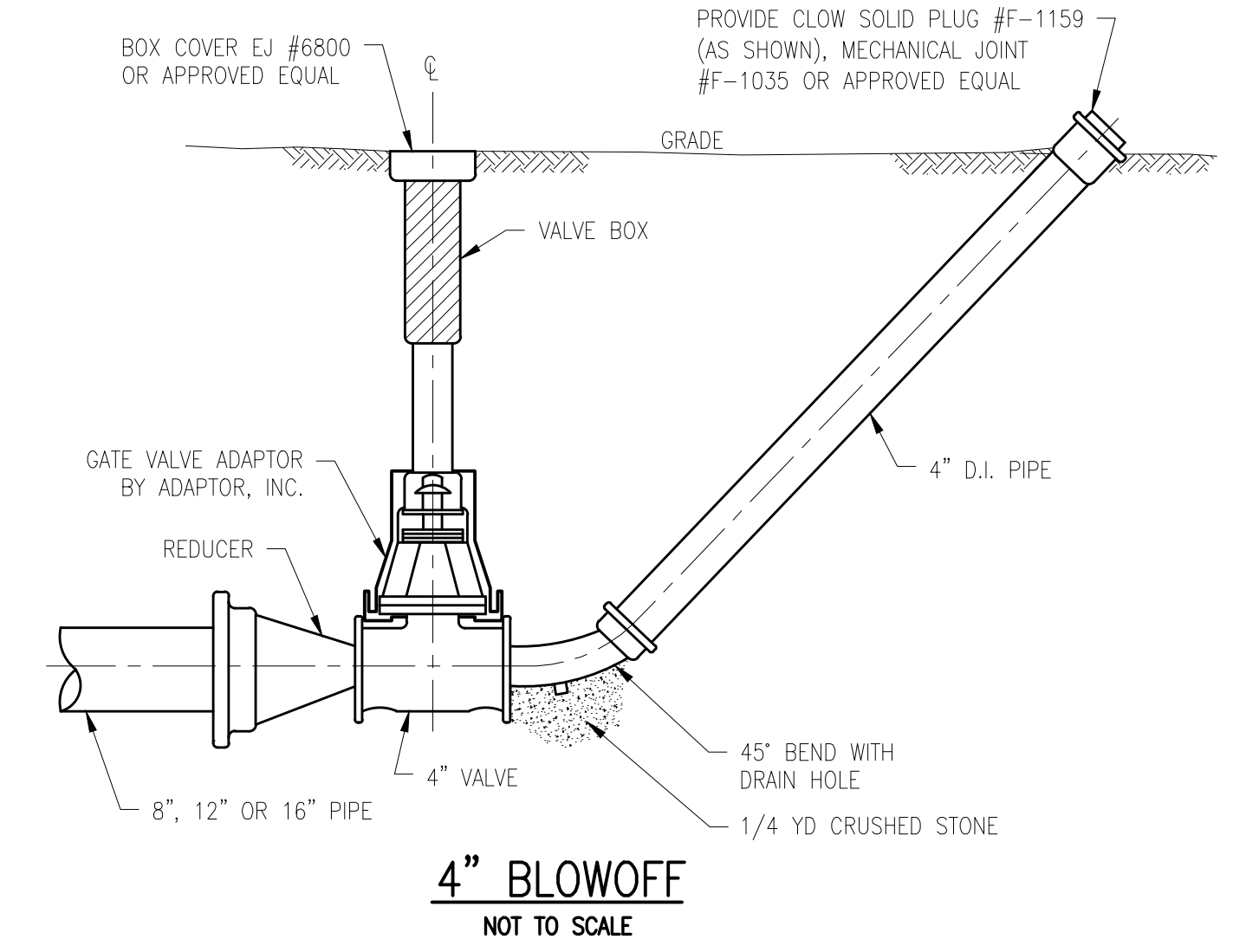
* DUCTILE IRON PIPE



STANDARD HYDRANT SETTING
NOT TO SCALE



CLOSE COUPLE HYDRANT SETTING
NOT TO SCALE



GATE VALVE & BOX
NOT TO SCALE



Know what's below.
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REVISIONS

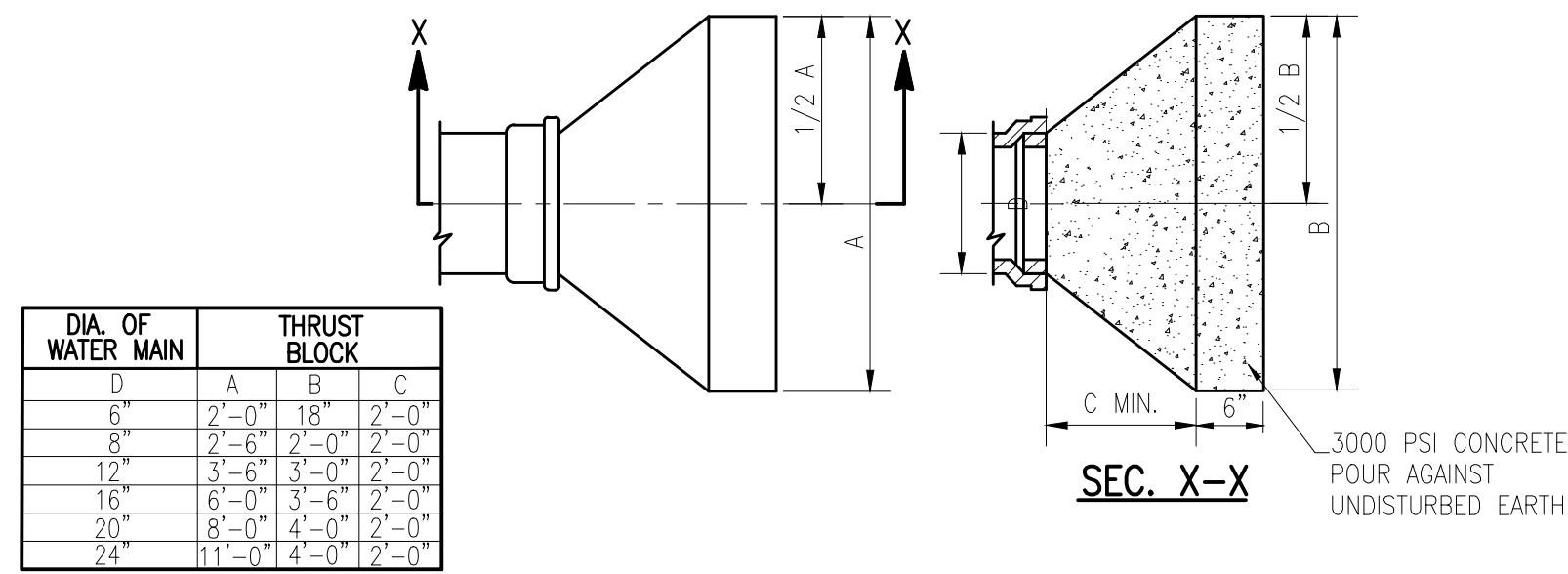
STANDARD WATER MAIN DETAILS

YPSILANTI COMMUNITY UTILITIES AUTHORITY
2777 STATE ROAD
YPSILANTI, MICHIGAN 48198-9112
(734) 484-4800
FAX: (734) 544-7221
WWW.YCAU.ORG

YCAU
ENVIRONMENTAL LEADERS

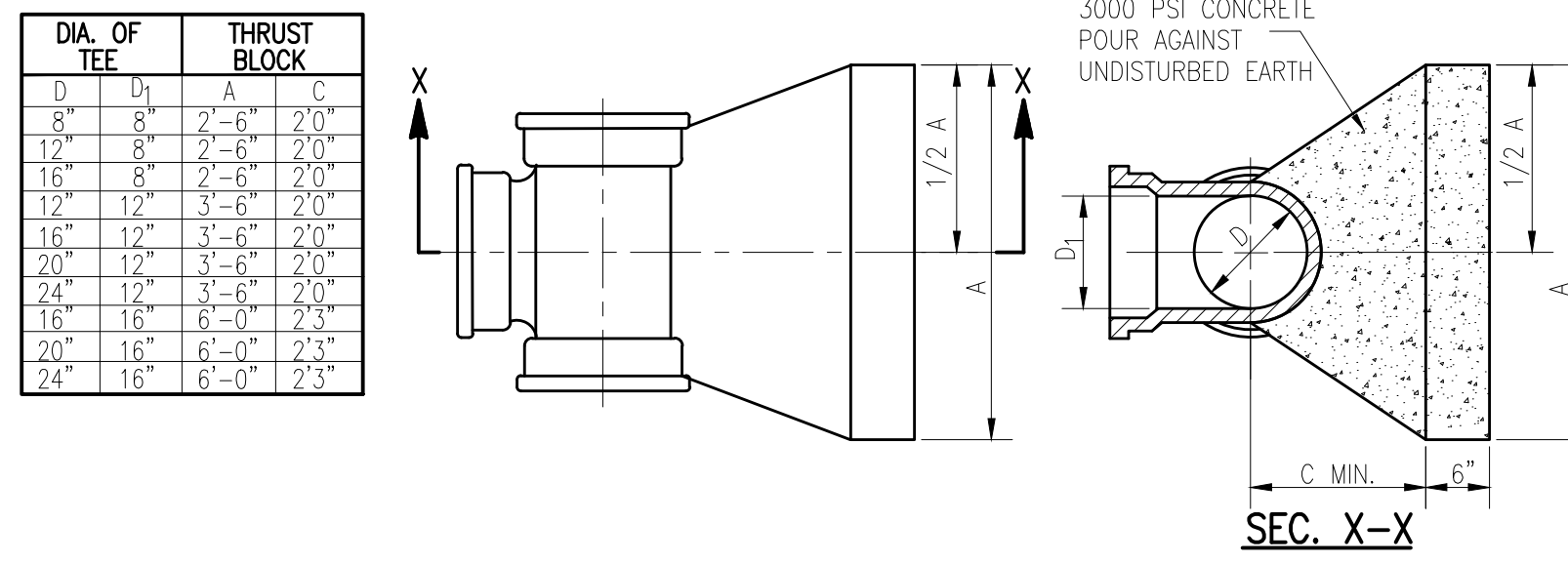
DATE	SCALE	SHEET
09/25/19	NO SCALE	

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DIA. OF WATER MAIN		THRUST BLOCK		
D	A	B	C	
8"	2'-0"	18"	2'-0"	
12"	2'-6"	2'-0"	2'-0"	
16"	3'-0"	3'-0"	2'-0"	
20"	3'-6"	3'-6"	2'-0"	
24"	4'-0"	4'-0"	2'-0"	

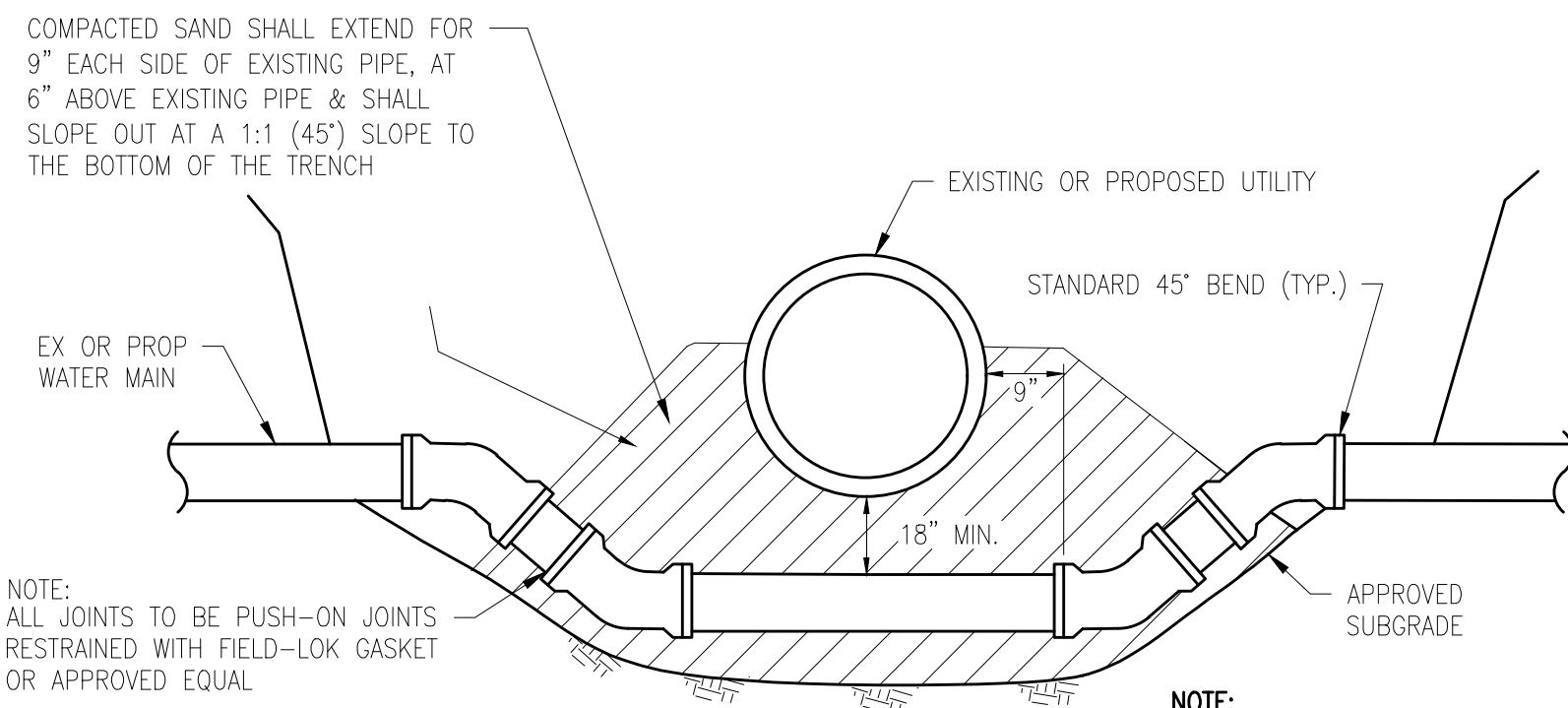
THRUST BLOCK AT PLUG OR HYDRANT SHOE
NOT TO SCALE



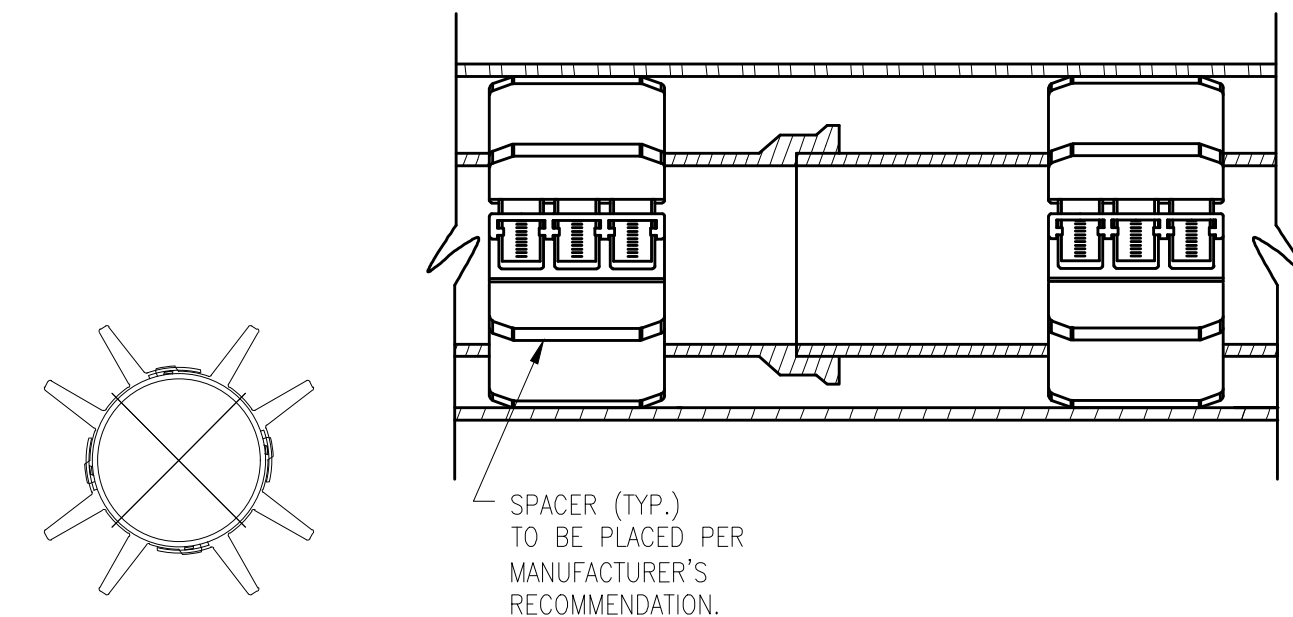
DIA. OF TEE		THRUST BLOCK		
D	A	B	C	
8"	2'-6"	2'-0"	2'-0"	
12"	3'-0"	2'-0"	2'-0"	
16"	3'-6"	2'-0"	2'-0"	
20"	4'-0"	2'-0"	2'-0"	
24"	4'-6"	2'-0"	2'-0"	

THRUST BLOCK AT TAPPING SLEEVE TEE
NOT TO SCALE

NOTE: CONCRETE THRUST BLOCKS WILL NOT BE PERMITTED EXCEPT BEHIND HYDRANT SHOES AND TAPPING SLEEVES. USE OF CONCRETE THRUST BLOCKS IN OTHER LOCATIONS WILL NOT BE PERMITTED WITHOUT THE WRITTEN APPROVAL OF YCUA. ALL OTHER VERTICAL AND HORIZONTAL BENDS SHALL BE RESTRAINED WITH FIELD-LOK GASKETS OR APPROVED MECHANICAL JOINTS.



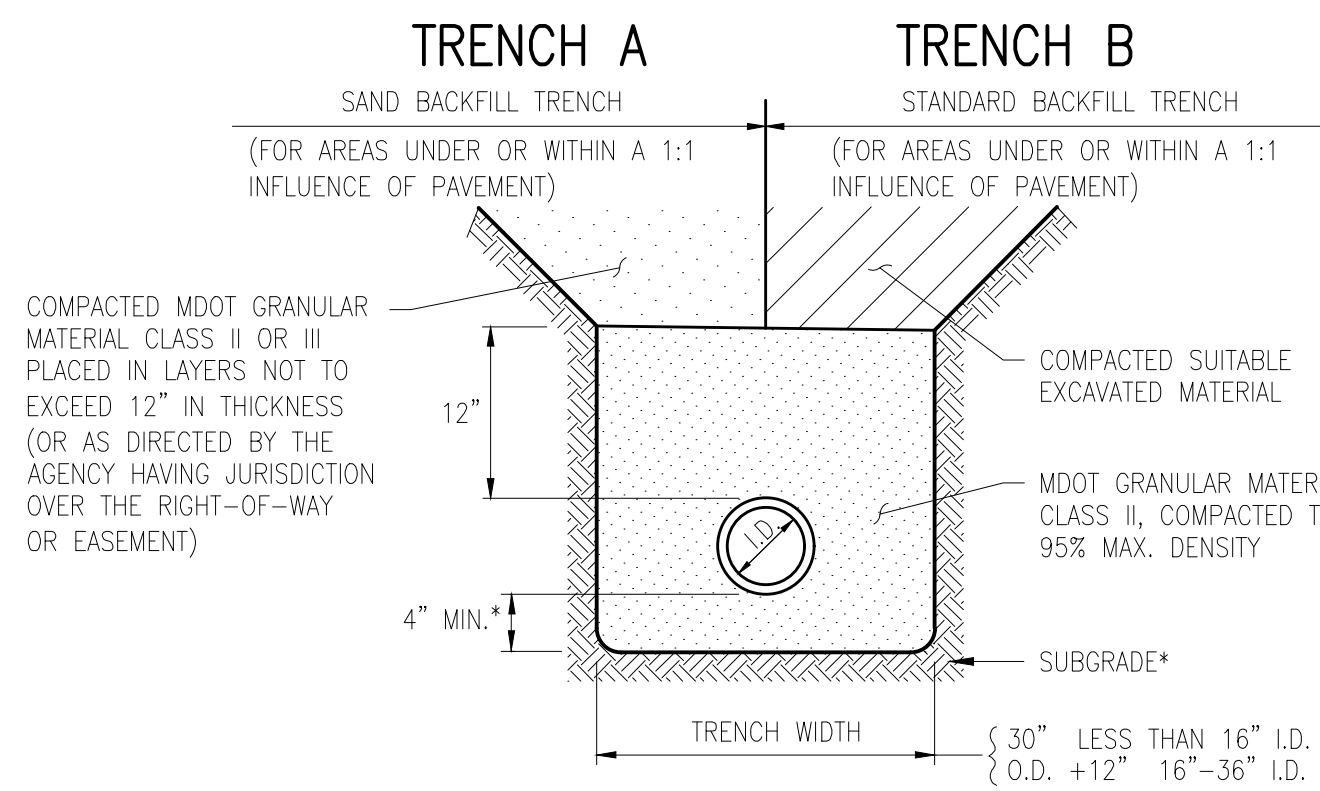
WATER MAIN LOWERING
NOT TO SCALE



SPACER END VIEW
NOT TO SCALE

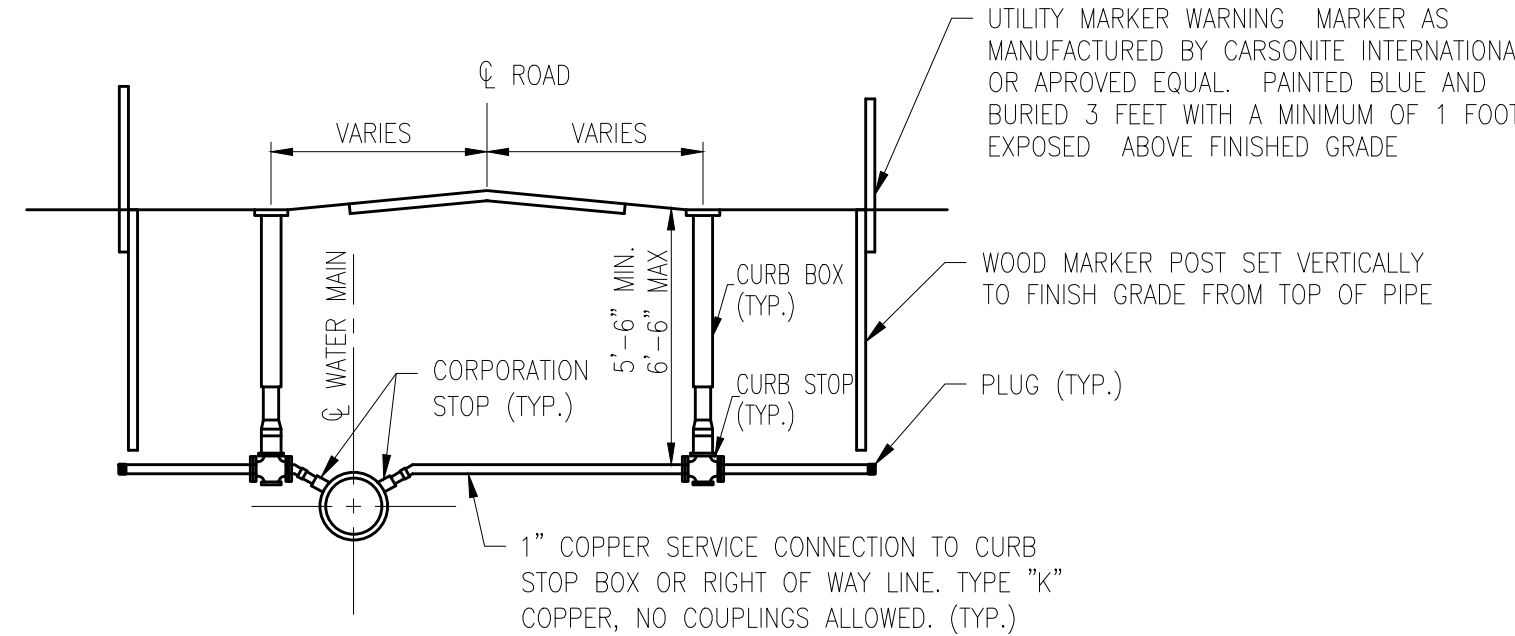
STANDARD CASING SECTION
NOT TO SCALE

- NOTES:
- SPACERS FOR PLACEMENT IN THE ANNULAR SPACE BETWEEN THE CARRIER PIPE AND A CASING PIPE SHALL BE RANGER II AS MANUFACTURED BY PSI OR APPROVED EQUAL.
 - END SEALS SHALL BE MODEL C RUBBER SEAL WITH STAINLESS STEEL BANDS AS MANUFACTURED BY PSI OR APPROVED EQUAL.

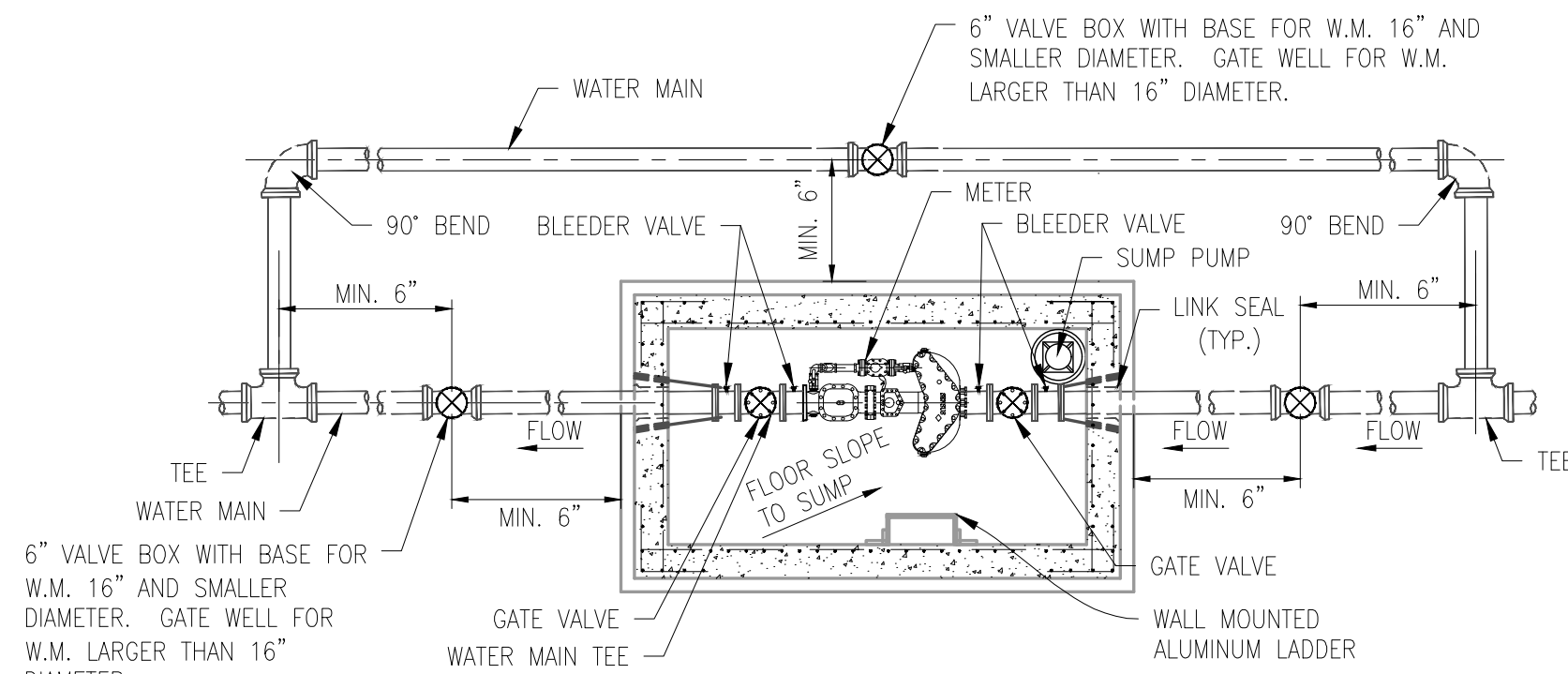


BEDDING AND TRENCH BACKFILL DETAIL FOR WATER MAIN
NOT TO SCALE

*NOTE: IF THE EXISTING SUBGRADE MATERIAL MEETS THE REQUIREMENTS FOR MDOT GRANULAR MATERIAL CLASS II (MINIMUM 4" THICK), THEN THE WATER MAIN MAY BE LAID DIRECTLY ON THE COMPACTED EXISTING SUBGRADE MATERIAL.

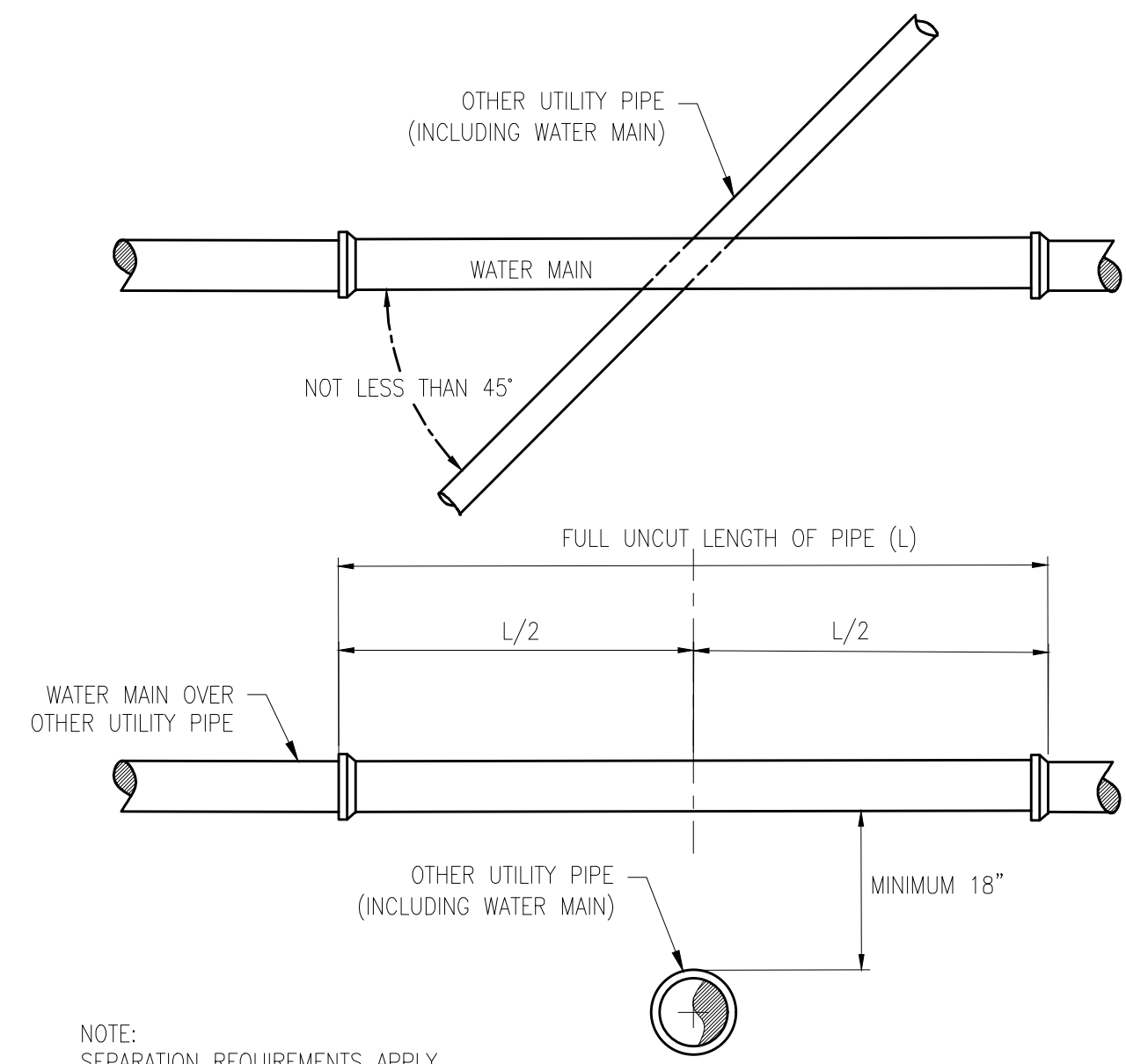


TYPICAL WATER SERVICE
NOT TO SCALE



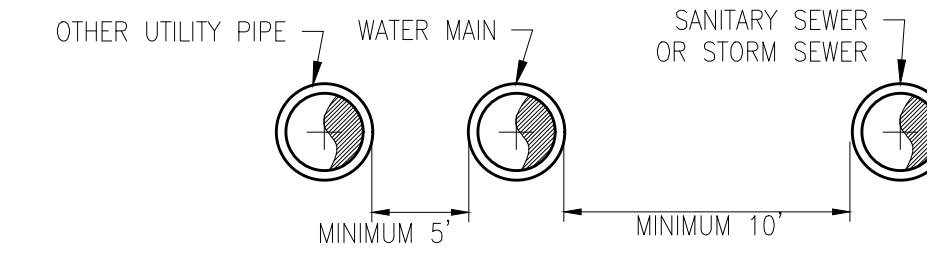
MASTER METER VAULT CONFIGURATION (WITHOUT COVER)
NOT TO SCALE

- NOTES:
- WHERE POSSIBLE THE METER VAULT SHALL BE LOCATED AWAY FROM TRAFFIC AREAS, ROADS, PARKING LOTS, ETC.
 - THE ACCESS HATCH SHALL BE SIZED LARGE ENOUGH TO ACCOMMODATE REMOVAL OF THE LARGEST METER OR THE LARGEST APPURTENANCE FOR MAINTENANCE PURPOSES. THE HATCH SHALL BE MANUFACTURED BY THE BILCO COMPANY. METER VAULT HATCH SHALL BE WATER TIGHT.
 - THE METER VAULT FLOOR SHALL BE SLOPED TO THE SUMP.
 - ELECTRICAL SERVICE SHALL BE SUPPLIED TO THE VAULT.



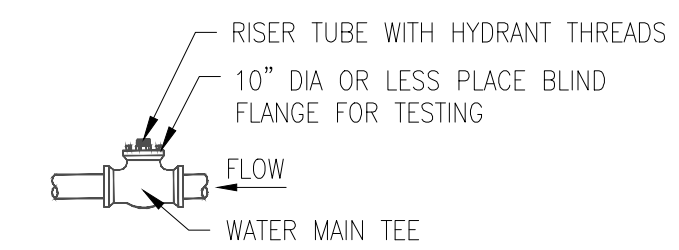
NOTE: SEPARATION REQUIREMENTS APPLY REGARDLESS OF VERTICAL ALIGNMENTS OF UTILITIES

VERTICAL SEPARATION



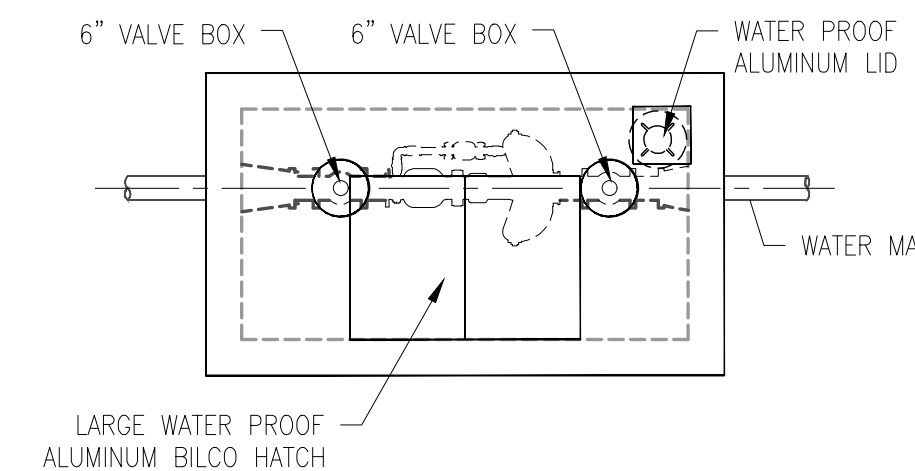
HORIZONTAL SEPARATION

WATER MAIN CROSSING OTHER UTILITIES
NOT TO SCALE



TEST PORT

PIPE DIA	TEST PORT SIZE
6"	6"
8"	8"
10"	10"
12"	10"
16"	10"



MASTER METER VAULT CONFIGURATION WITH COVER
NOT TO SCALE



REVISIONS

STANDARD WATER MAIN DETAILS

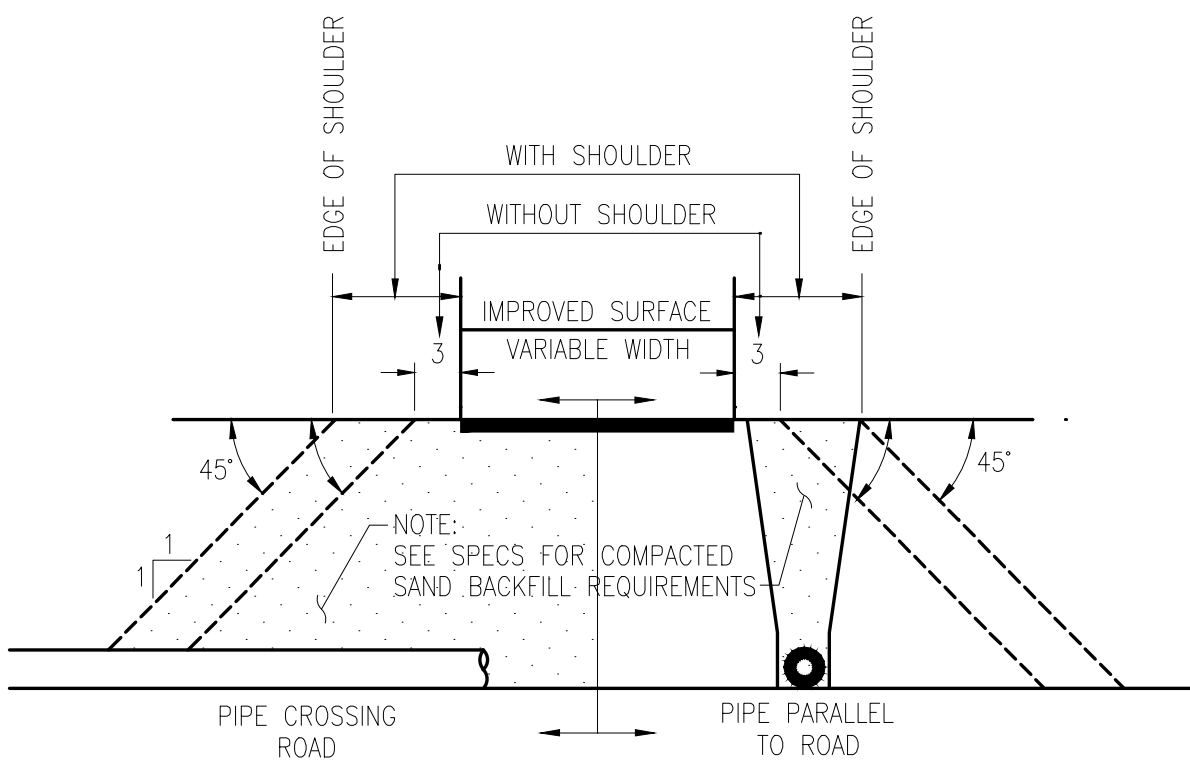
YPSILANTI COMMUNITY UTILITIES AUTHORITY
2777 STATE ROAD
YPSILANTI, MICHIGAN 48198-9112
(734) 484-4800
FAX: (734) 544-7221
WWW.YCUA.ORG

YCUA
ENVIRONMENTAL LEADERS

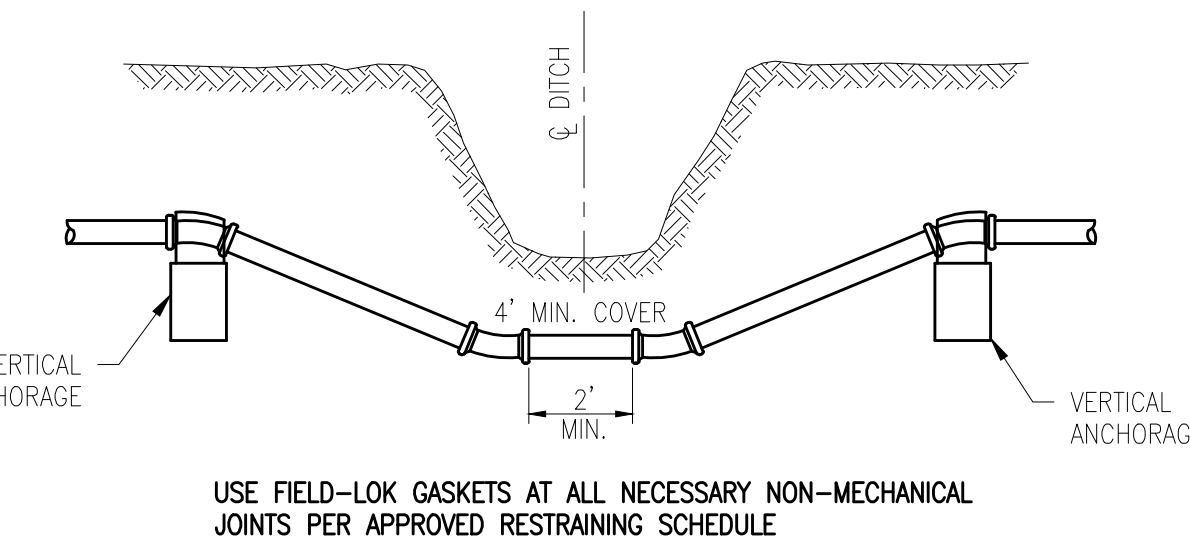
DATE: 09/25/19 SCALE: NO SCALE SHEET:

ALL DRAWINGS AND WRITTEN MATERIALS APPEARING HEREIN CONSTITUTE THE ORIGINAL AND UNPUBLISHED WORK OF YCUA AND THE SAME MAY NOT BE DUPLICATED, DISTRIBUTED, OR DISCLOSED WITHOUT PRIOR WRITTEN CONSENT OF YCUA.

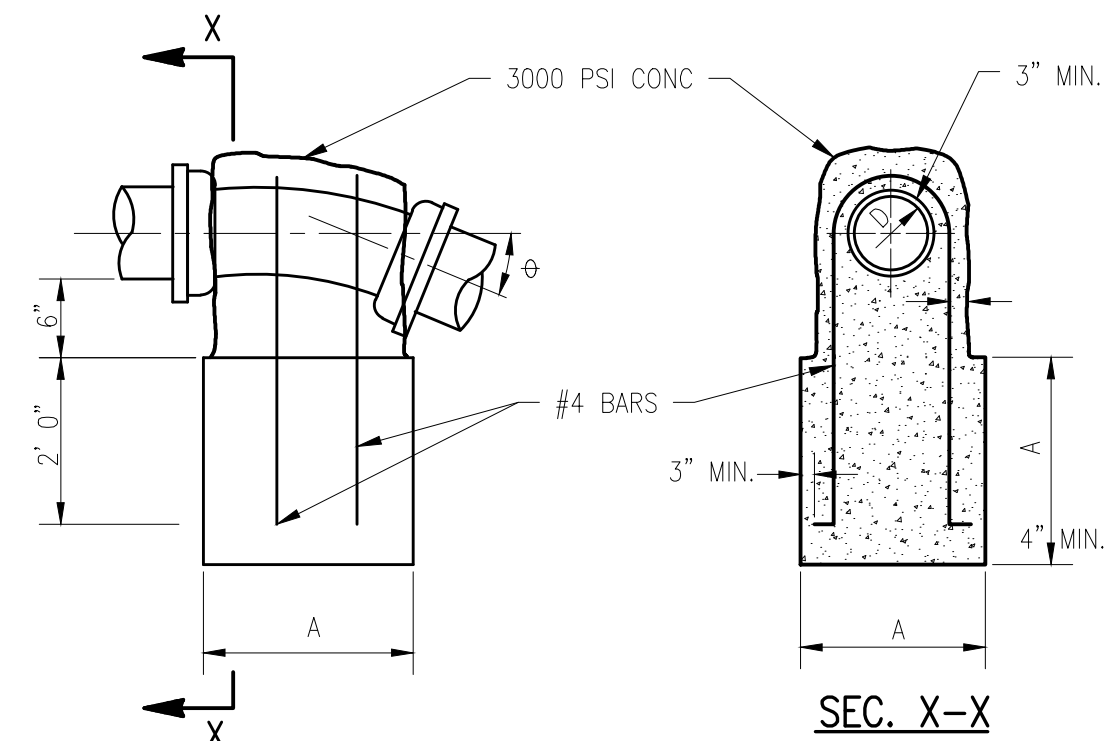
TRACER WIRE DETAILS



**BACKFILL IN THE AREA OF STREETS, ALLEYS
SIDEWALKS, DRIVES & PARKING LOTS**
NOT TO SCALE



STANDARD DITCH CROSSING
NOT TO SCALE



DETAIL OF VERTICAL ANCHORAGE
NOT TO SCALE

DIA. OF WATER MAIN	BEND	A	NUMBER OF BARS
6"	22 1/2°	2'-0"	2
6"	45°	3'-3"	2
8"	22 1/2°	3'-3"	2
8"	45°	4'-0"	3
12"	11 1/4°	3'-3"	2
12"	22 1/2°	4'-0"	3
16"	11 1/4°	3'-3"	2
16"	22 1/2°	4'-0"	3
20"	11 1/4°	4'-0"	2
20"	22 1/2°	5'-0"	3
24"	11 1/4°	4'-0"	2
24"	22 1/2°	5'-0"	3

PIPE RESTRAINT SCHEDULE

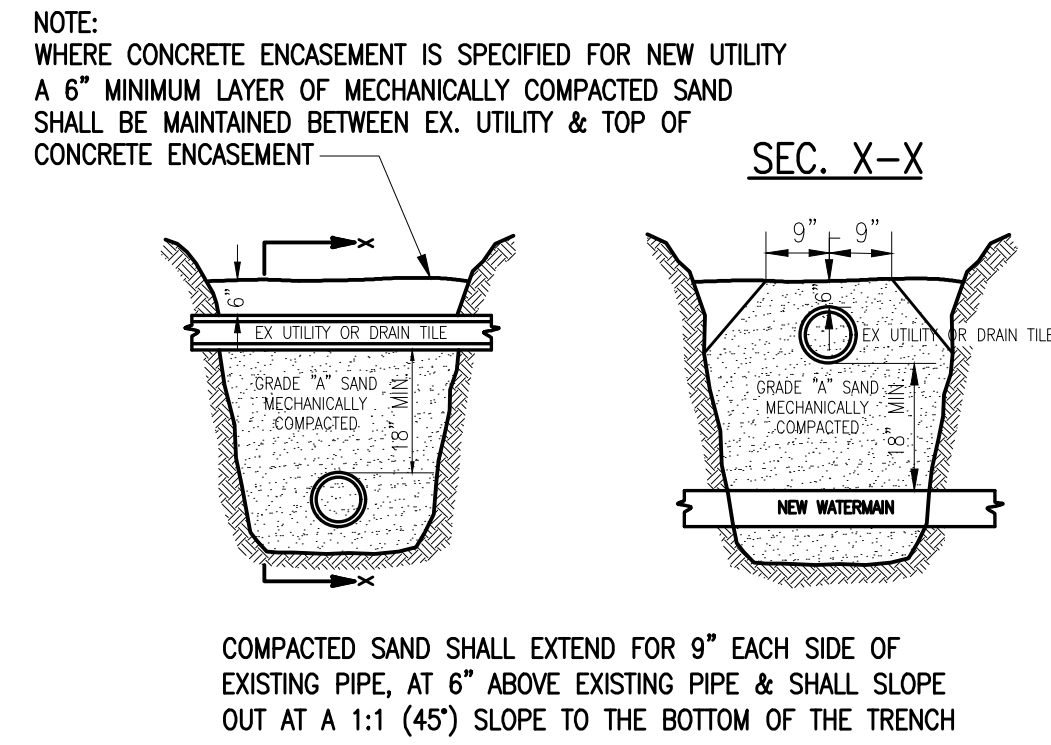
THE FOLLOWING TABLE IS A JOINT RESTRAINT SCHEDULE (DIPRA) FOR GROUND-BURIED DUCTILE IRON OR PVC PIPE. LENGTHS OF PIPE RESTRAINT ARE GIVEN IN FEET.

PIPE DIAMETER	TEES, 90° PLUGS	45° BENDS	22 1/2° BENDS	REDUCERS
6"	40	25	25	30
8"	55	25	25	30
12"	80	35	25	55
16"	100	40	25	60
24"	135	56	25	65

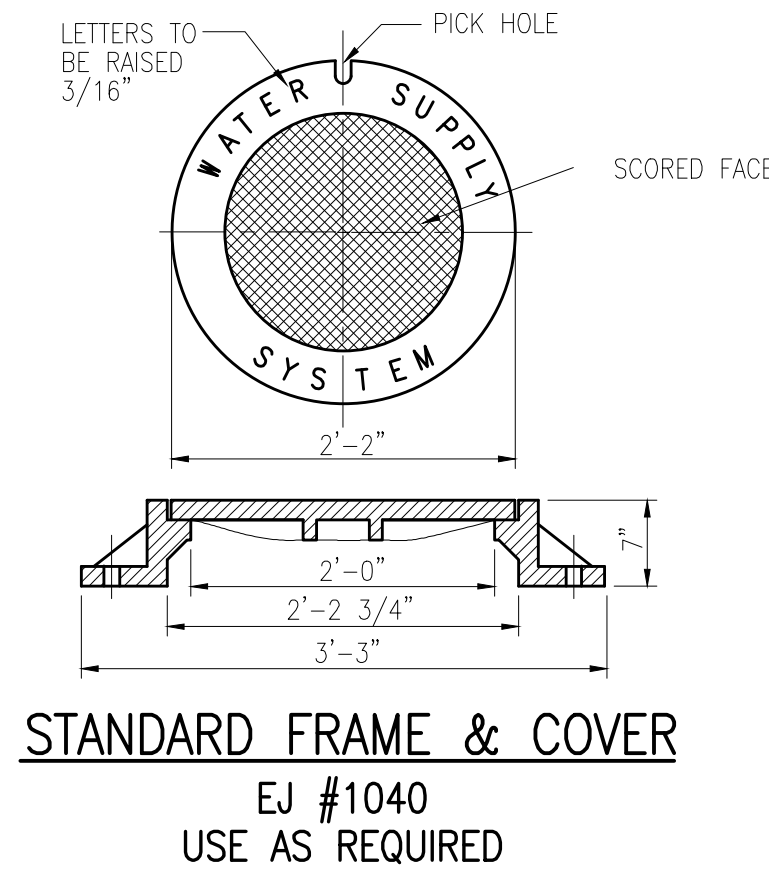
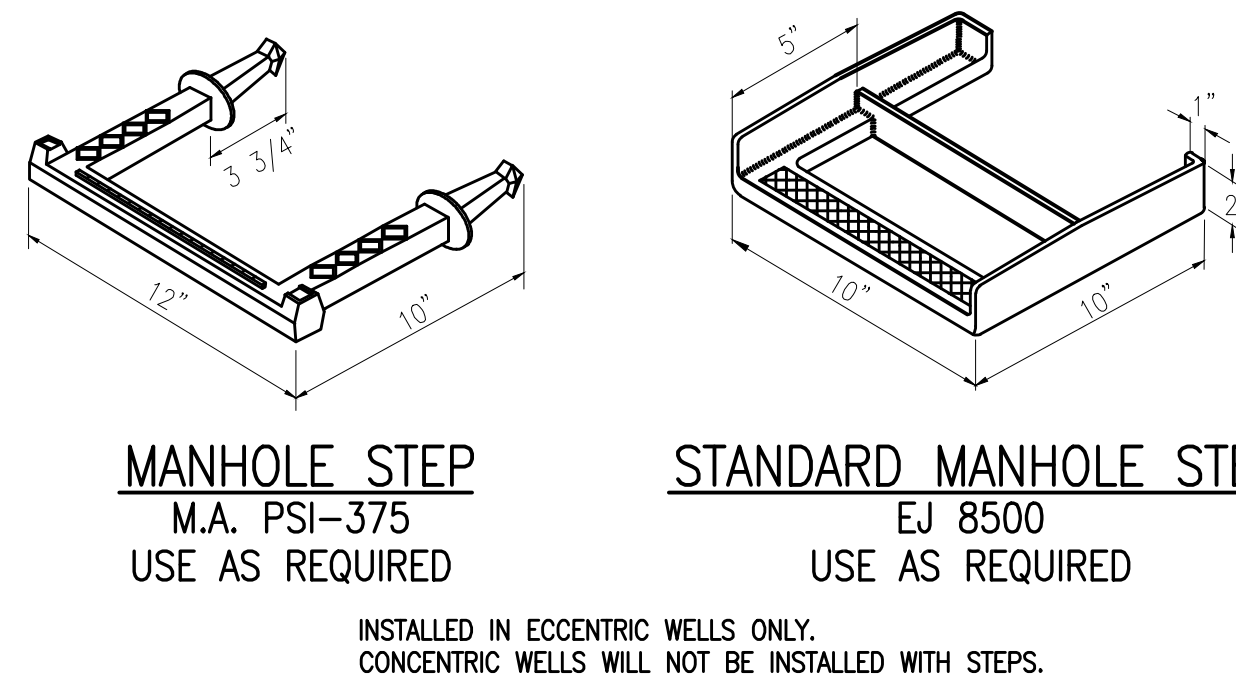
BASED UPON

INTERNAL PRESSURE: 180
PIPE DEPTH: 5
BEDDING CLASS: TYPE 4
SOIL TYPE: GOOD SAND
SAFETY FACTOR: 2

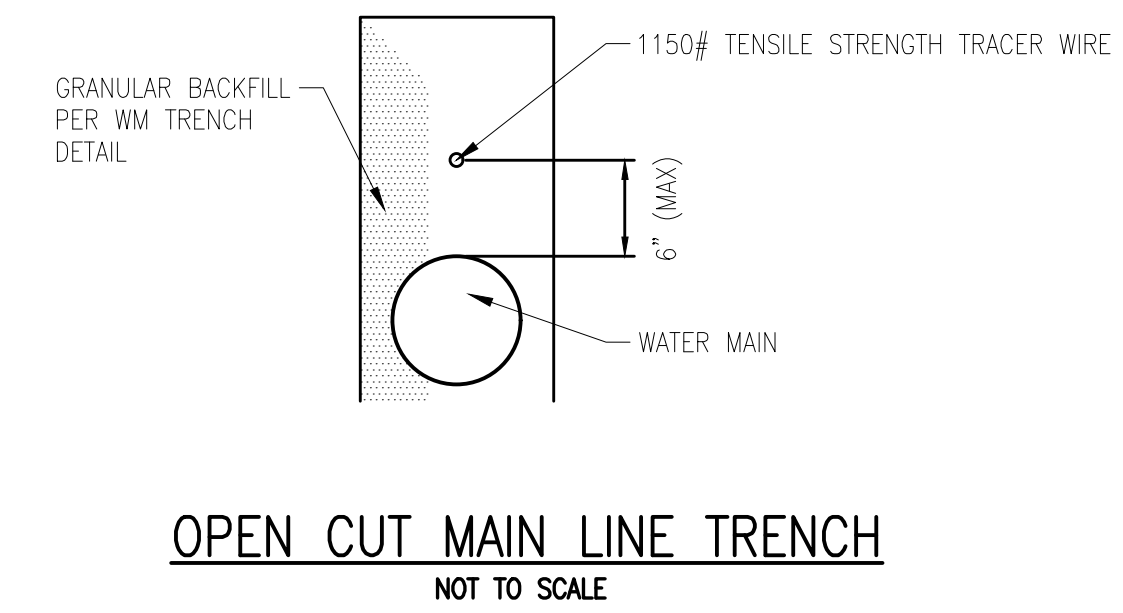
- IF PIPE DIAMETER IS NOT LISTED IN THIS TABLE, THE NEXT LARGEST PIPE SHALL BE USED. THIS TABLE IS BASED ON A TEST PRESSURE OF 180 PSI (OPERATING PRESSURE PLUS WATER HAMMER).
- FOR OTHER TEST PRESSURES, ALL VALUES TO BE INCREASED OR DECREASED PROPORTIONALLY. THE VALUES PROVIDED OF RESTRAINT LENGTH ARE IN EACH DIRECTION FROM THE POINT OF DEFLECTION OR TERMINATION EXCEPT FOR TEES, AT WHICH ONLY THE BRANCH IN THE DIRECTION OF THE STEM.
- IF TIE RODS ARE USED, USE FOUR RODS MINIMUM AND ADD 1/8 INCH TO BAR DIAMETER AS CORROSION ALLOWANCE. SIZE REDUCTION IS BASED UPON THE PIPE DIAMETER SHOWN IN THIS TABLE.
- MANUFACTURER'S RESTRAINT SCHEDULE AND SPECIFIC SITE CONDITIONS MAY MODIFY THE ABOVE SCHEDULE. ANY ALTERNATIVE SCHEDULE SHALL BE SUBMITTED TO YCUA FOR APPROVAL.



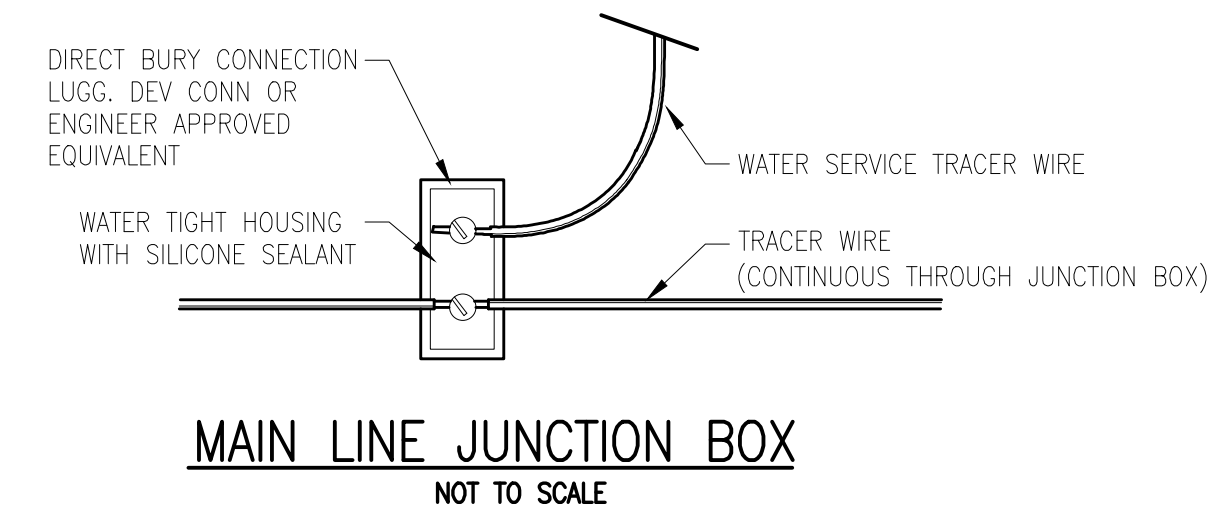
STANDARD PIPE SUPPORT
NOT TO SCALE



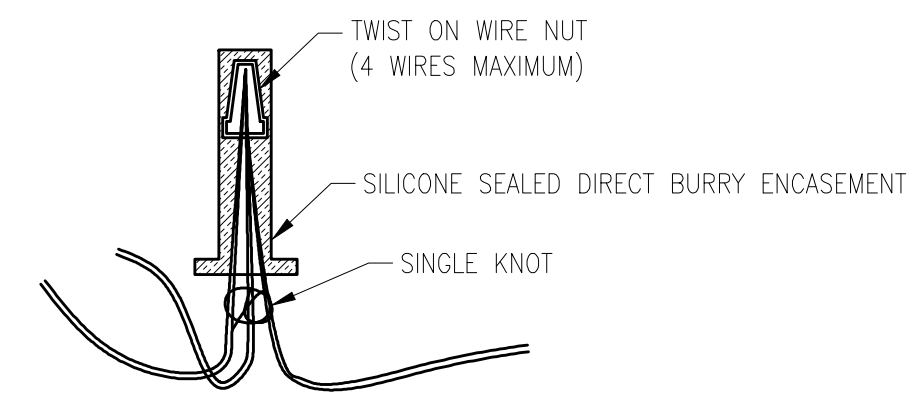
STANDARD FRAME & COVER
EJ #1040
USE AS REQUIRED



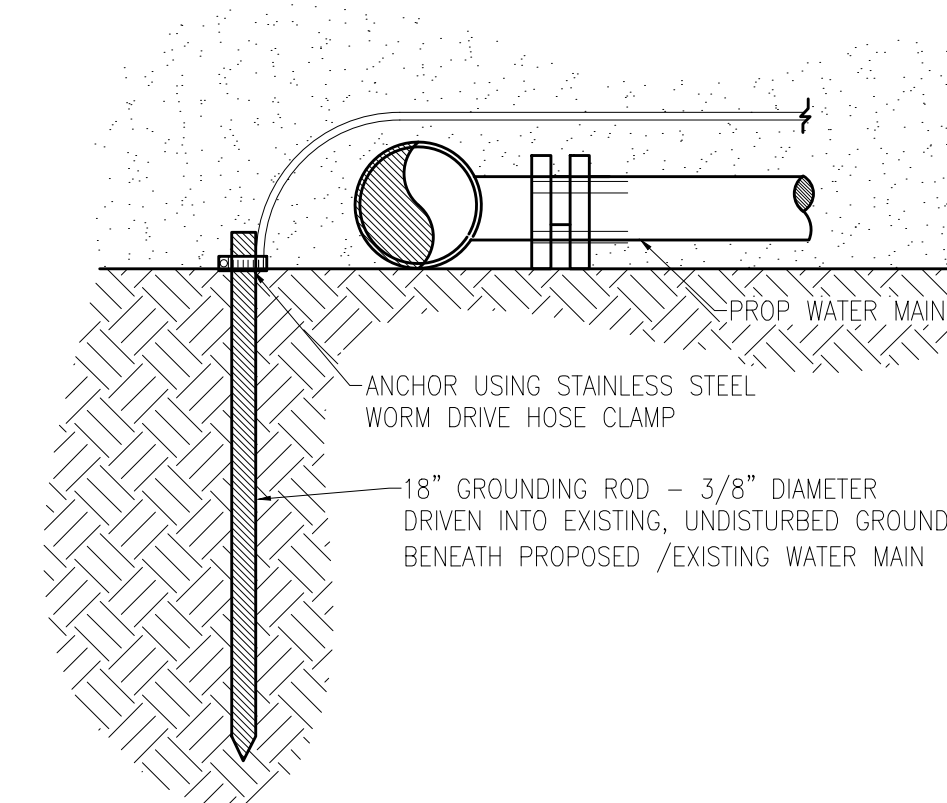
OPEN CUT MAIN LINE TRENCH
NOT TO SCALE



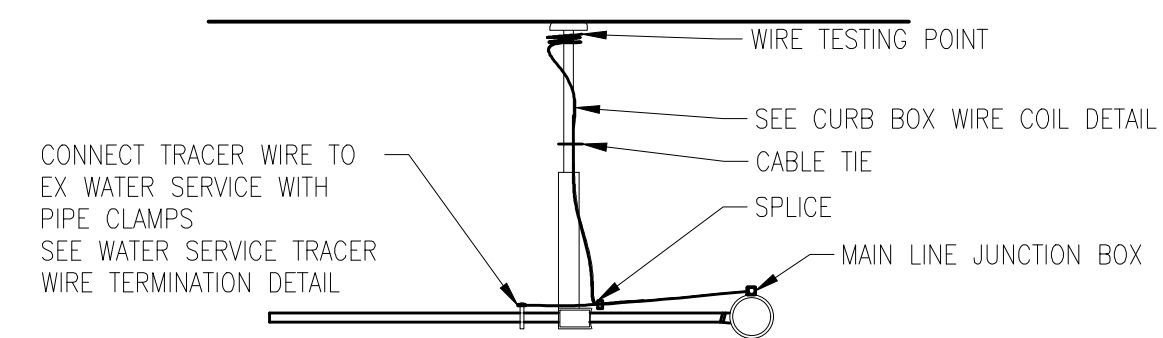
MAIN LINE JUNCTION BOX
NOT TO SCALE



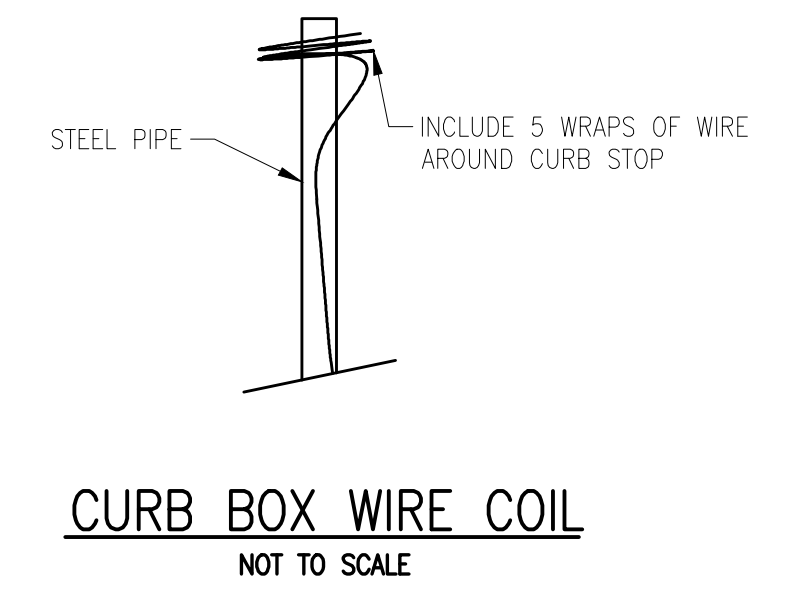
SPLICE CONNECTOR
NOT TO SCALE



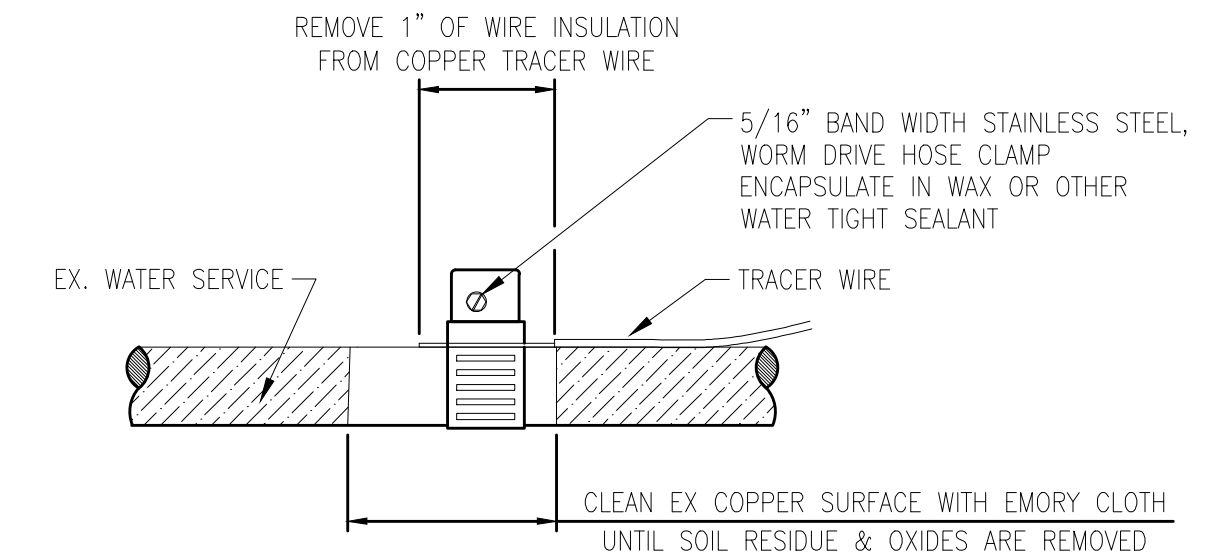
GROUNDING ROD TERMINATION
NOT TO SCALE



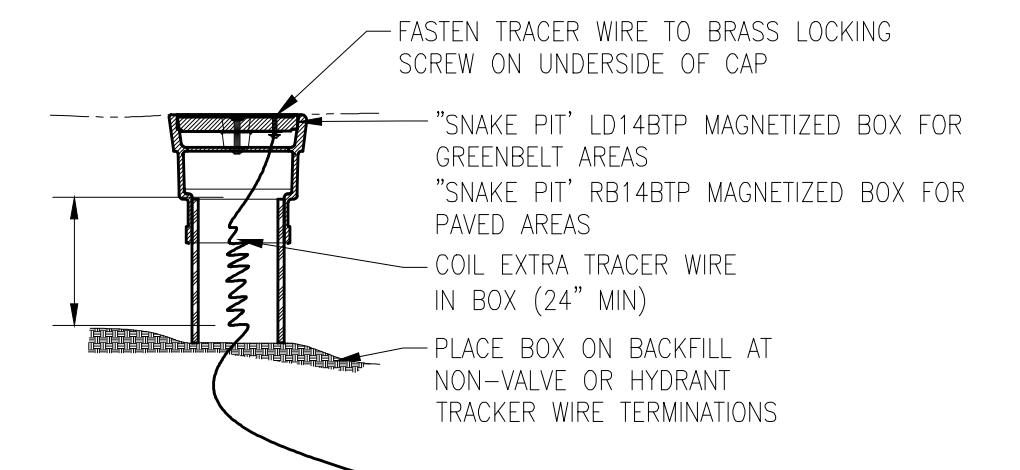
CURB STOP CONNECTION
NOT TO SCALE



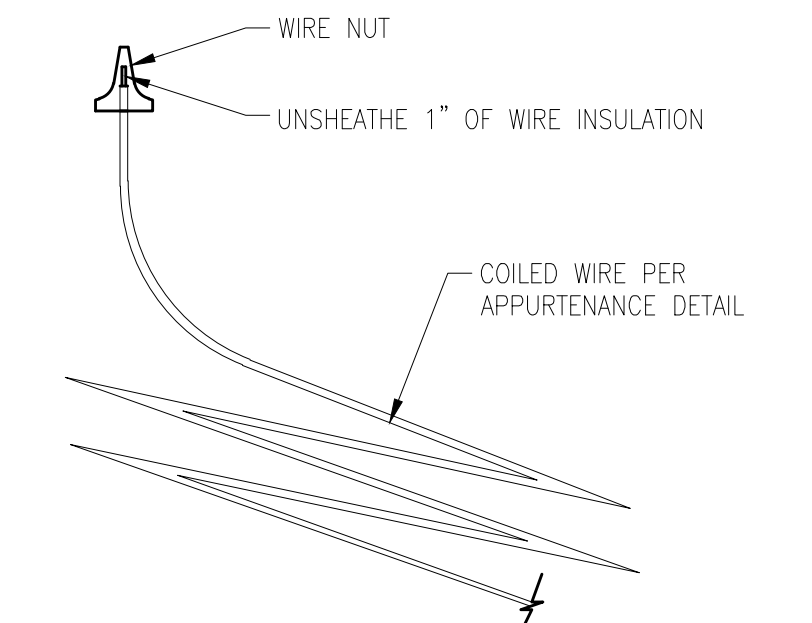
CURB BOX WIRE COIL
NOT TO SCALE



WATER SERVICE TERMINATION
NOT TO SCALE



TRACER WIRE TEST POINT
NOT TO SCALE



WIRE TESTING POINT
NOT TO SCALE



REVISIONS

STANDARD WATER MAIN DETAILS

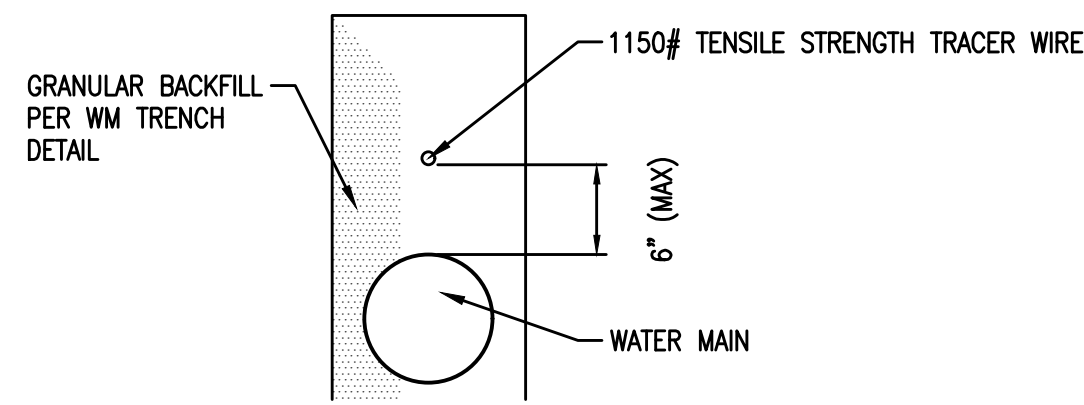
YPSILANTI COMMUNITY UTILITIES AUTHORITY
2777 STATE ROAD
YPSILANTI, MICHIGAN 48198-9112
(734) 484-4800
FAX: (734) 544-7221
WWW.YCUA.ORG

YCUA
ENVIRONMENTAL LEADERS

DATE	SCALE	SHEET
09/25/19	NO SCALE	

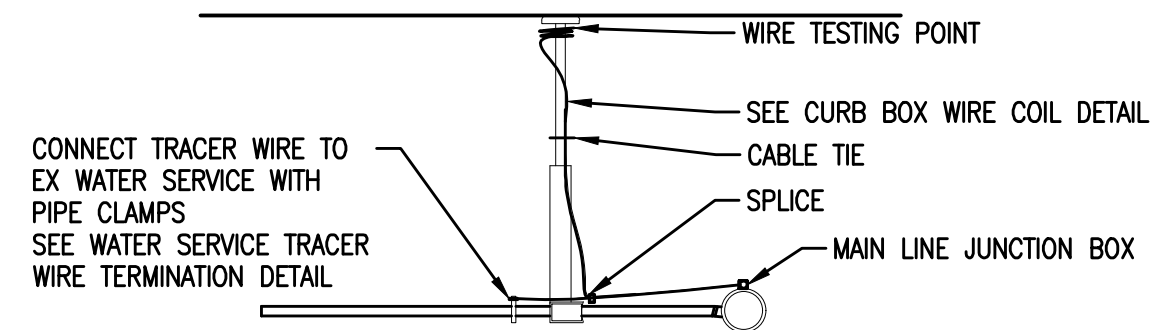
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TRACER WIRE SHALL BE INCLUDED WITH ALL PVC WATER MAIN INSTALLATIONS



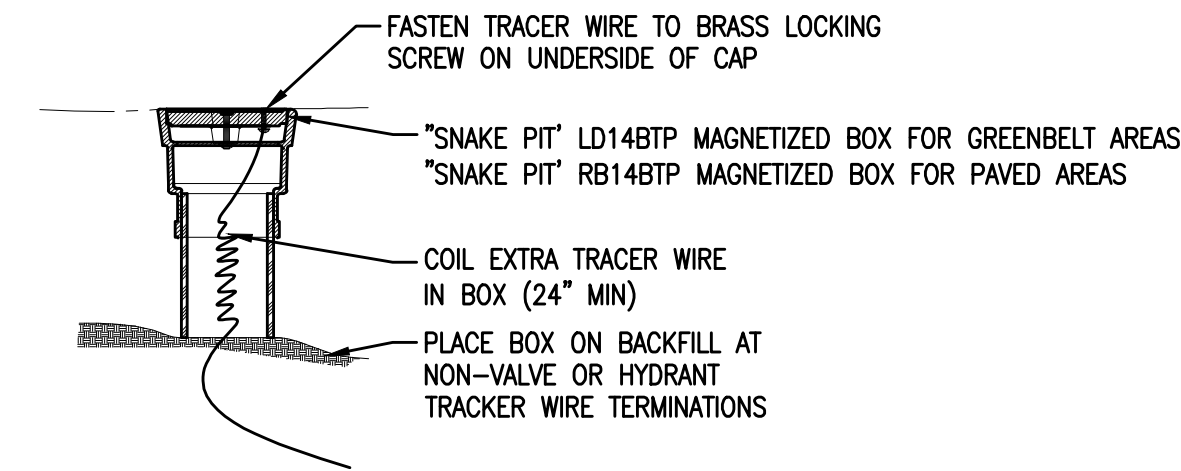
OPEN CUT MAIN LINE TRENCH

N.T.S.



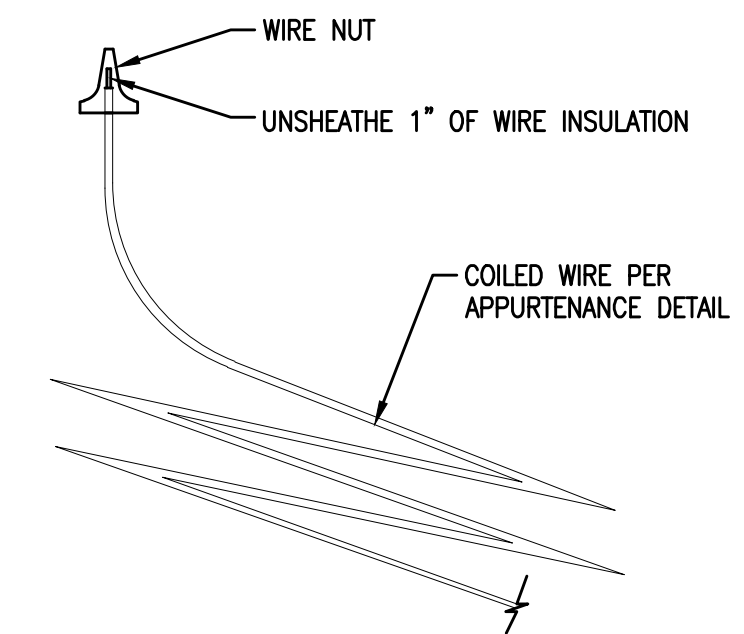
CURB STOP CONNECTION

N.T.S.



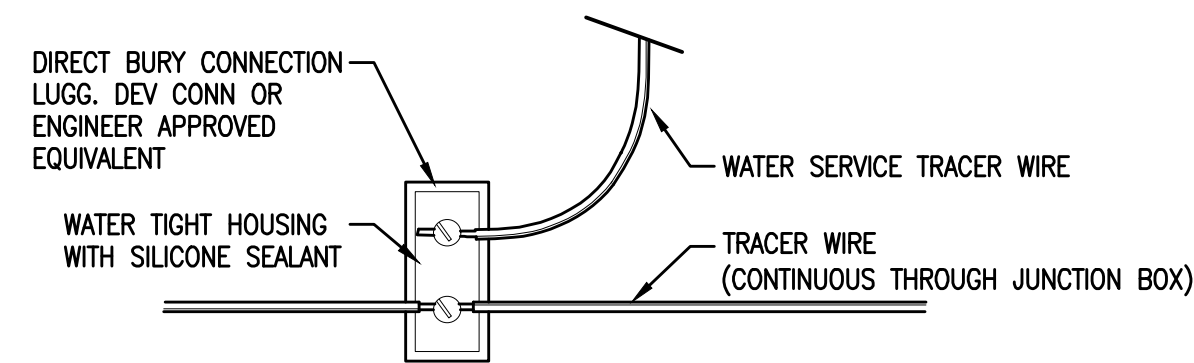
TRACER WIRE TEST POINT

N.T.S.



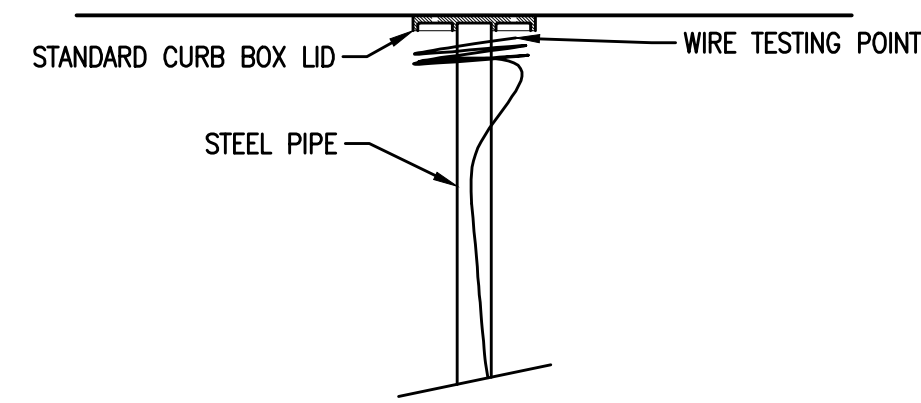
WIRE TESTING POINT

N.T.S.



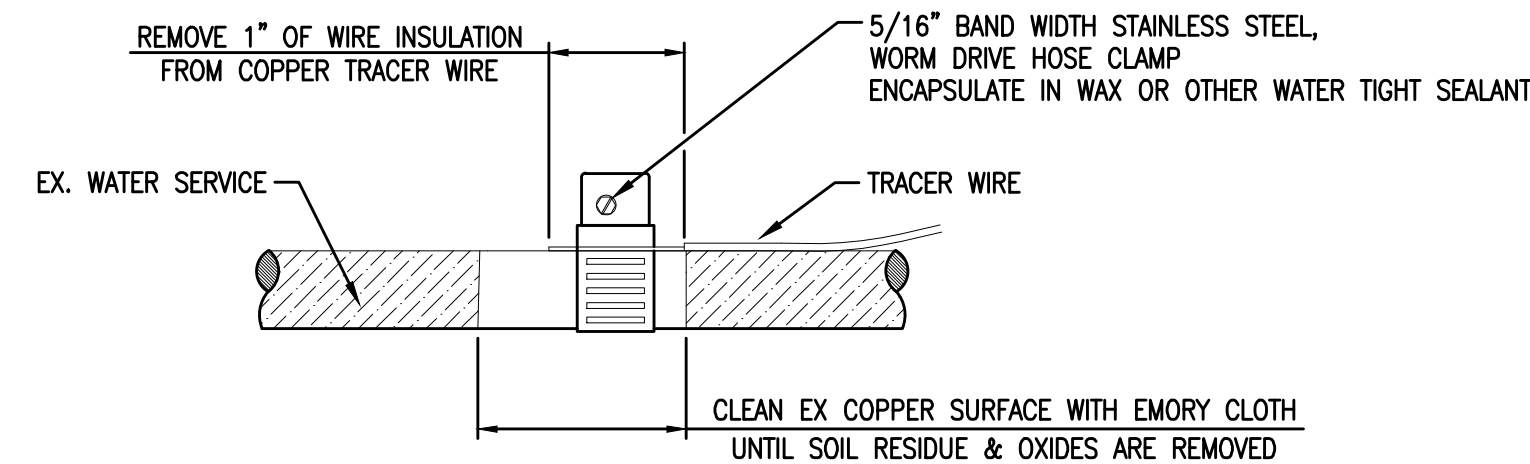
MAIN LINE JUNCTION BOX

N.T.S.



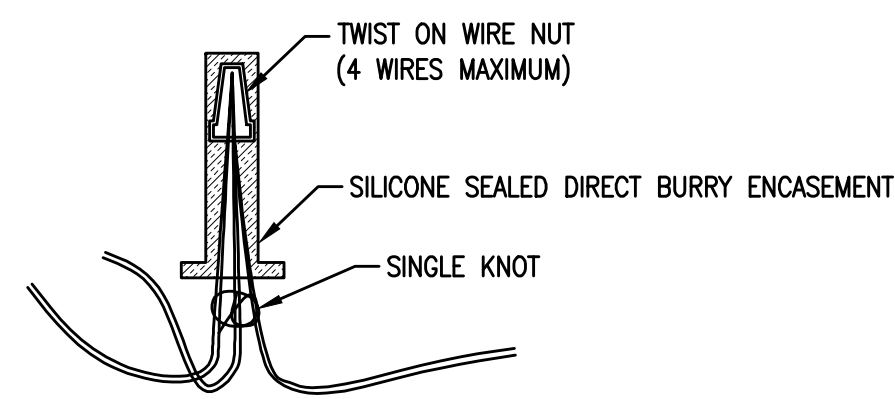
CURB BOX WIRE COIL

N.T.S.



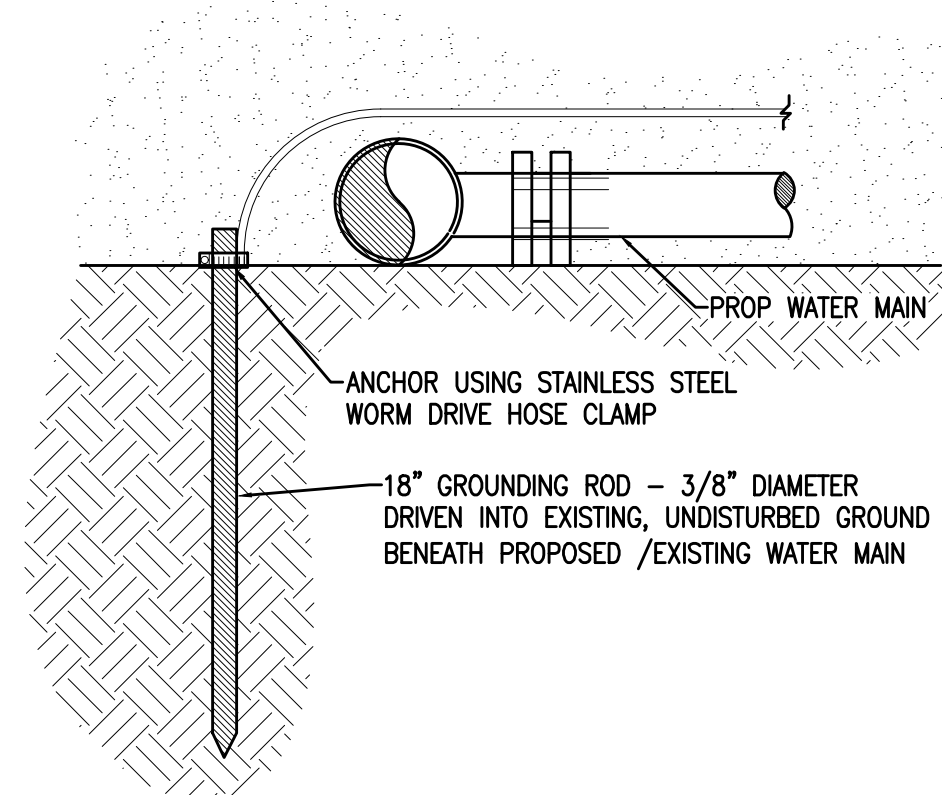
WATER SERVICE TERMINATION

N.T.S.



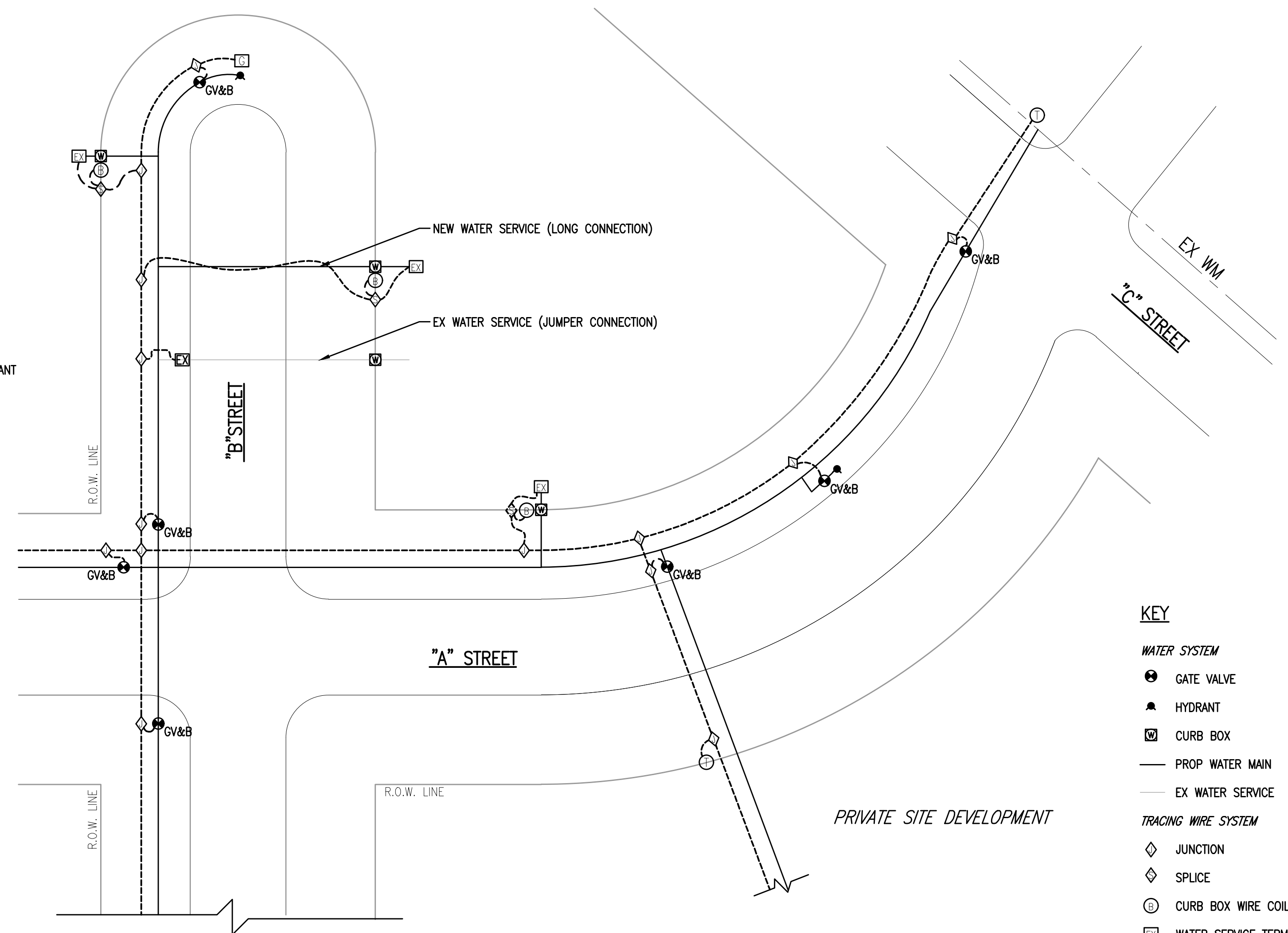
SPLICE CONNECTOR

N.T.S.



GROUNDING ROD TERMINATION

N.T.S.



KEY

- WATER SYSTEM
- GATE VALVE
 - ▲ HYDRANT
 - ☐ CURB BOX
 - PROP WATER MAIN
 - EX WATER SERVICE
- TRACING WIRE SYSTEM
- ◇ JUNCTION
 - ◇ SPLICE
 - ⊙ CURB BOX WIRE COIL
 - ☒ WATER SERVICE TERMINATION
 - TEST POINT
 - ⊠ GROUNDING ROD TERMINATION
 - TRACING WIRE

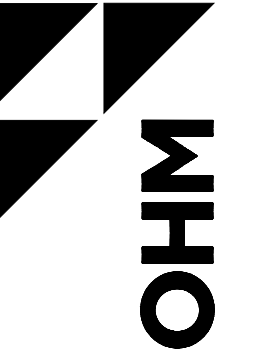
TRACER WIRE SYSTEM SCHEMATIC



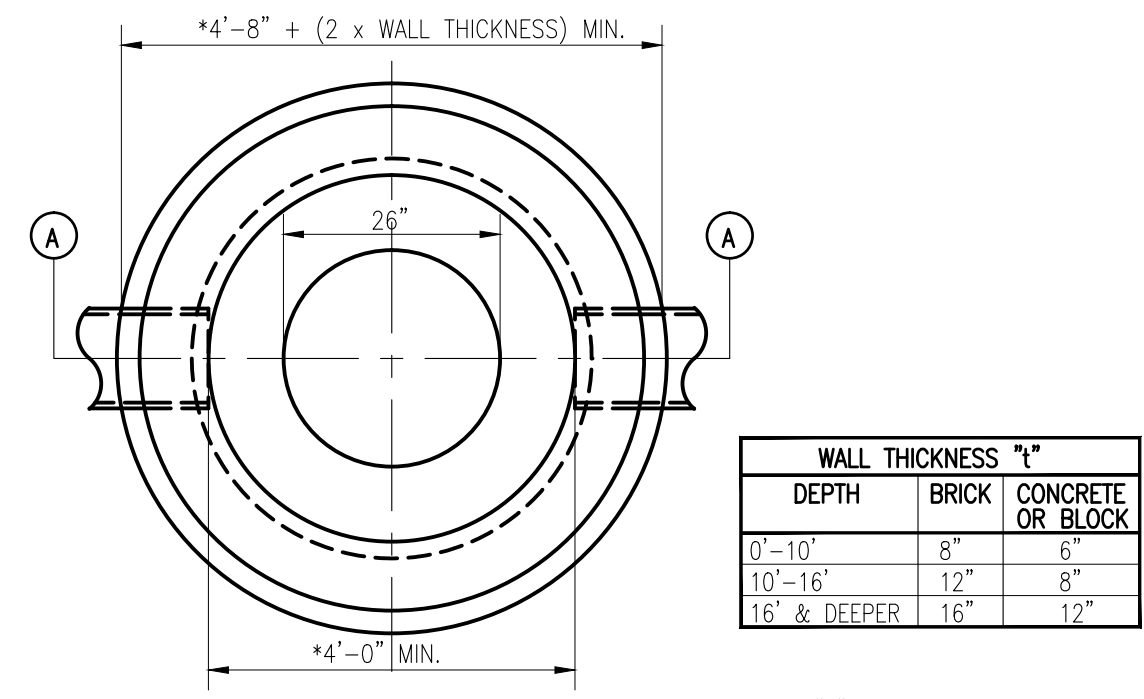
Know what's below.
Call before you dig.

REVISIONS	STANDARD WATER MAIN DETAILS	YPSILANTI COMMUNITY UTILITIES AUTHORITY		
		2777 STATE ROAD YPSILANTI, MICHIGAN 48198-9112 (734) 484-4800 FAX: (734) 544-7221 WWW.YCQA.ORG	ENVIRONMENTAL LEADERS	
		DATE	SCALE	SHEET
		07/24/18	NO SCALE	

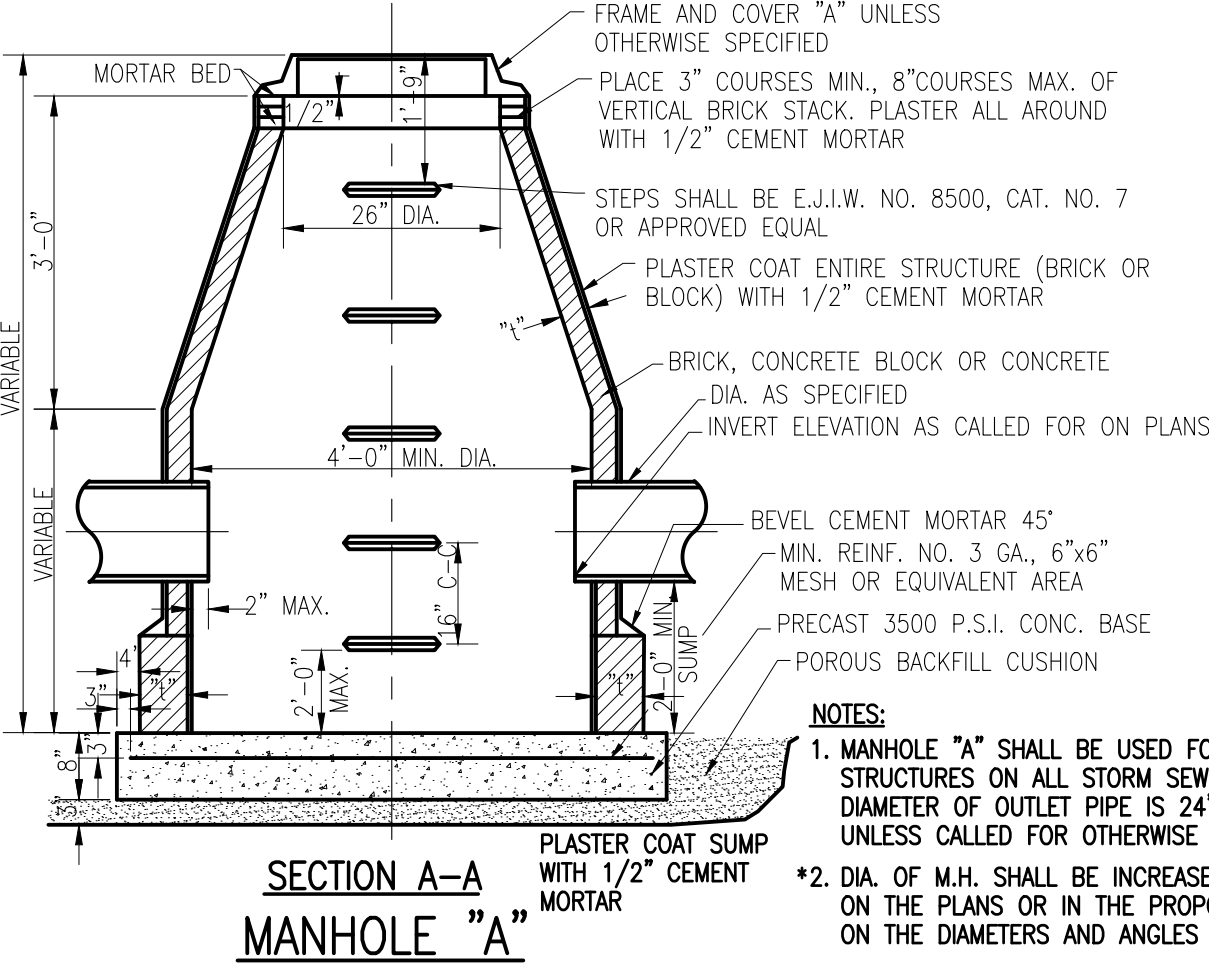
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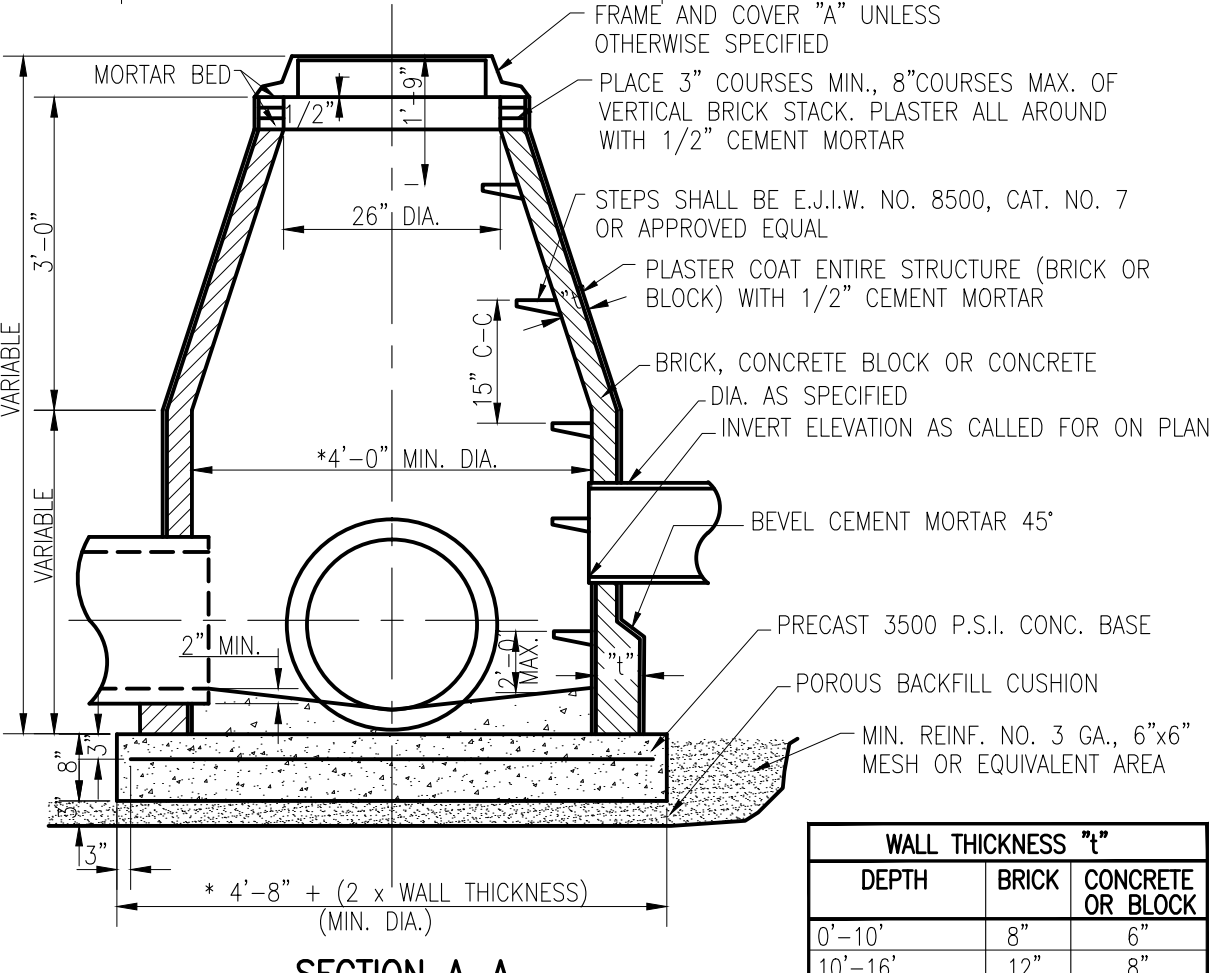
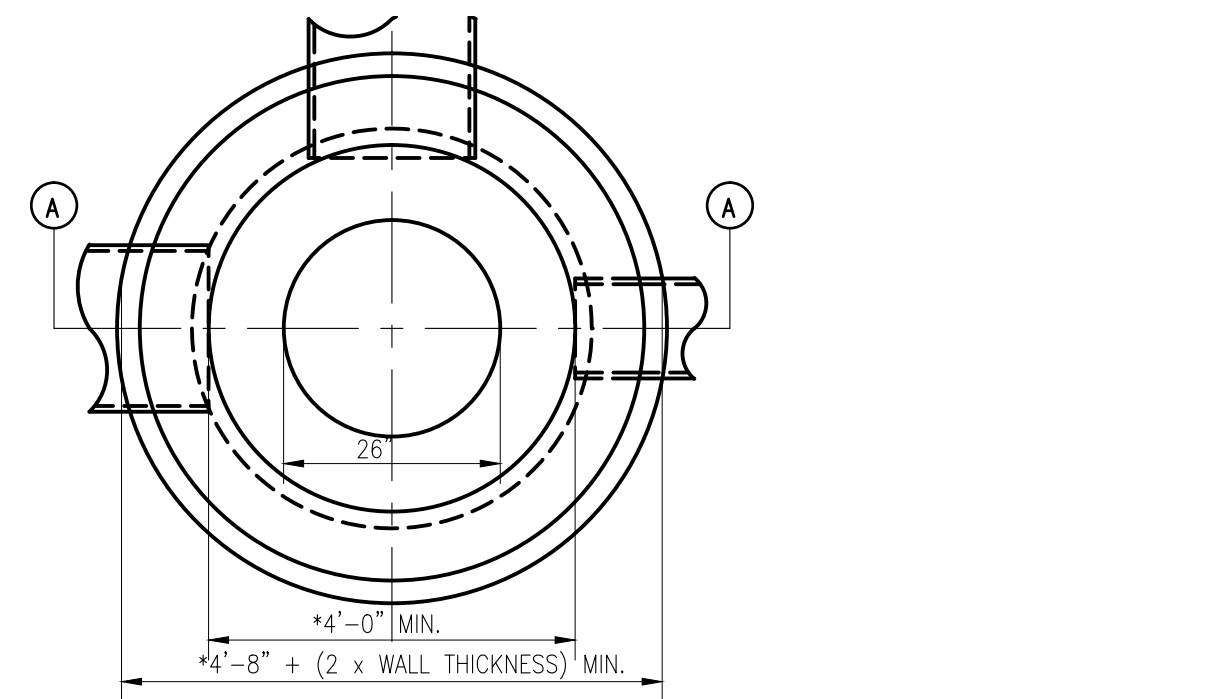
DATE	CADD	ENG./ARCH	PROJ. MGR.	SECTION	TOWN	RANGE	COUNTY	CITY/TOWNSHIP	SCALE	VERT. DATUM	JOB #



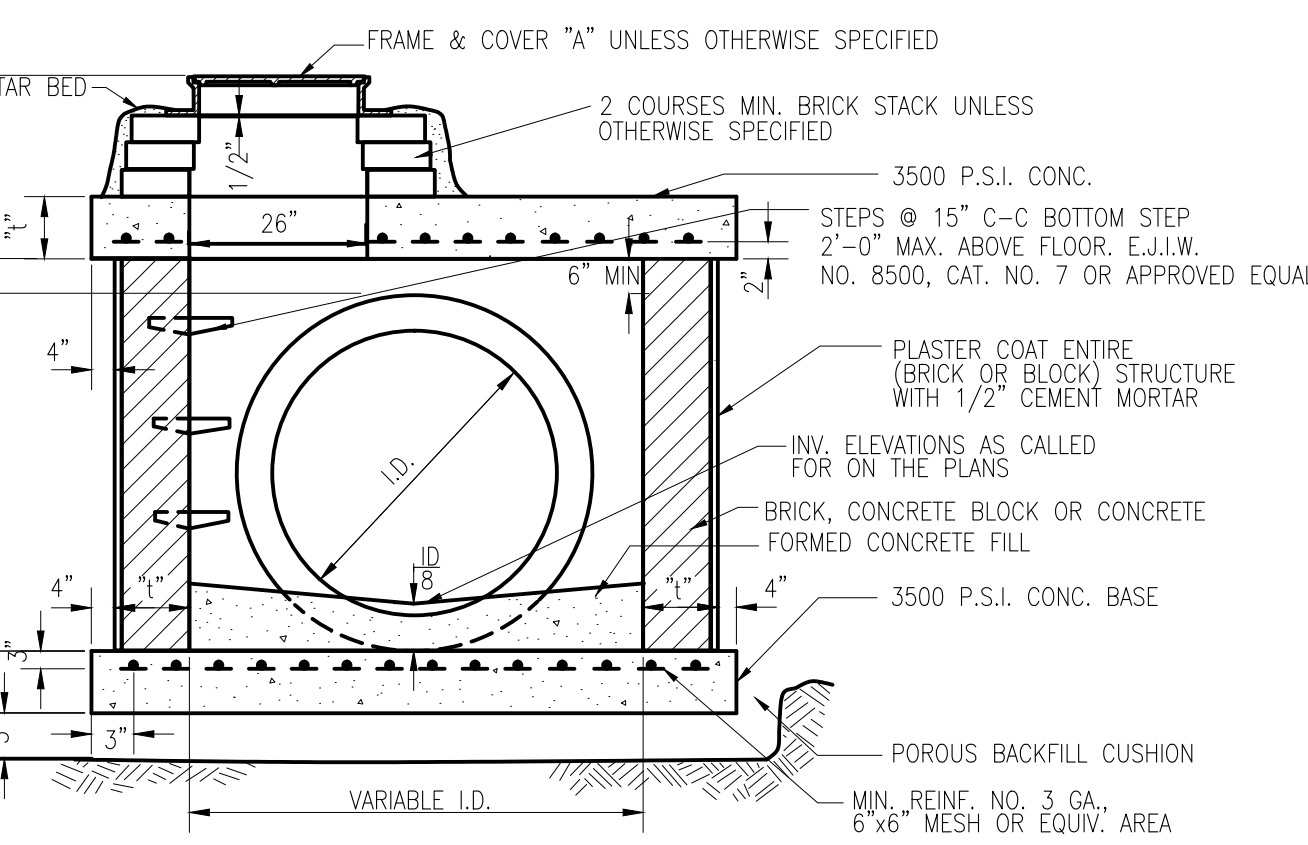
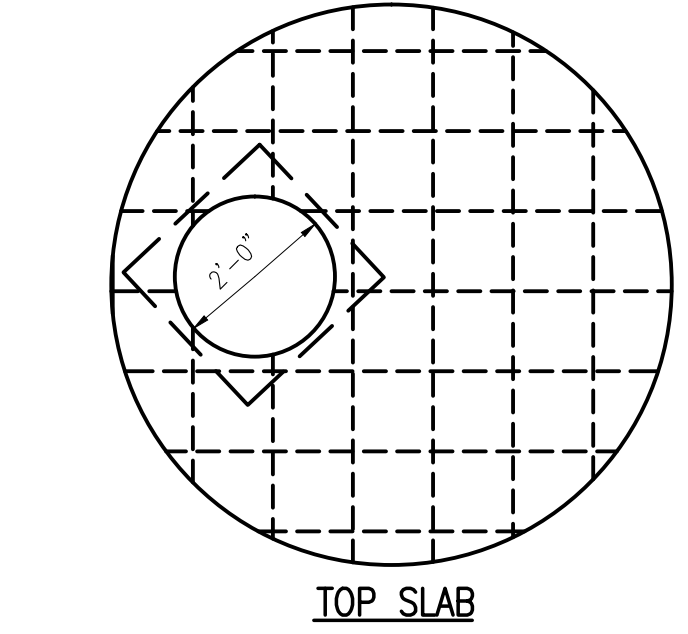
DEPTH	BRICK	CONCRETE OR BLOCK
0'-10"	8"	6"
10'-16"	12"	8"
16' & DEEPER	16"	12"



NOTES:
 1. MANHOLE "A" SHALL BE USED FOR MANHOLE STRUCTURES ON ALL STORM SEWERS WHERE THE DIAMETER OF OUTLET PIPE IS 24" OR SMALLER, UNLESS CALLED FOR OTHERWISE ON THE PLANS.
 *2. DIA. OF M.H. SHALL BE INCREASED AS SHOWN ON THE PLANS OR IN THE PROPOSAL DEPENDING ON THE DIAMETERS AND ANGLES OF THE SEWERS.



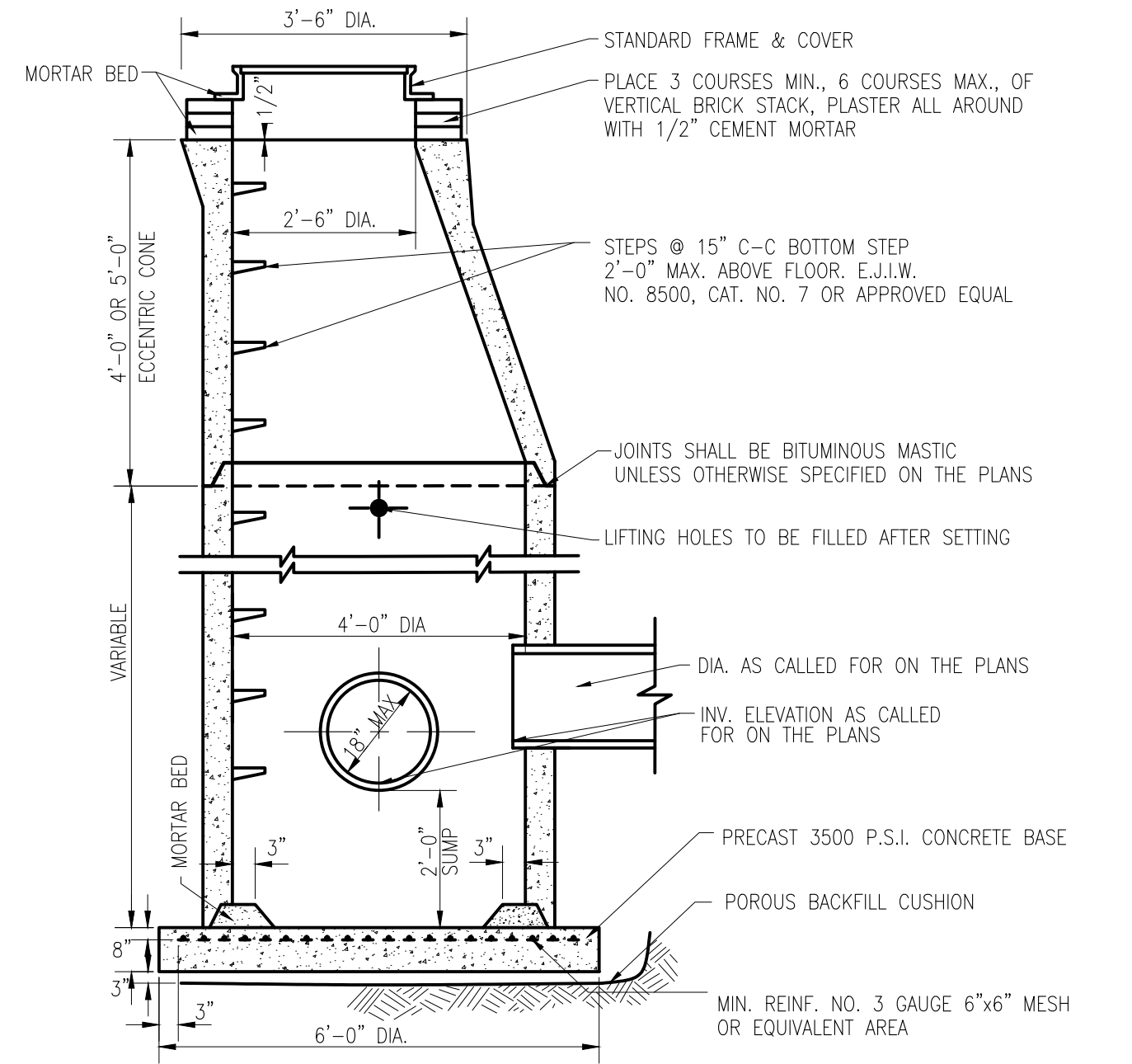
NOTES:
 1. MANHOLE "B" SHALL BE USED FOR MANHOLE STRUCTURES ON ALL STORM SEWERS WHERE THE DIAMETER OF OUTLET PIPE IS 24" OR SMALLER, UNLESS CALLED FOR OTHERWISE ON THE PLANS.
 *2. DIA. OF M.H. SHALL BE INCREASED AS SHOWN ON THE PLANS OR IN THE PROPOSAL DEPENDING ON THE DIAMETERS AND ANGLES OF THE SEWERS.



OUTLET I.D.	M.H. D	TOP SLAB	WALLS	REINFORCING STEEL (SLAB)
24" OR LESS	4'-0"	9"	8"	3/4" @ 9" EACH WAY
30"	4'-0"	9"	8"	3/4" @ 9" EACH WAY
36"	4'-0"	9"	12"	3/4" @ 9" EACH WAY
42"	4'-0"	10"	12"	3/4" @ 9" EACH WAY
48"	4'-0"	11"	12"	7/8" @ 9" EACH WAY
54"	4'-0"	11"	12"	7/8" @ 9" EACH WAY

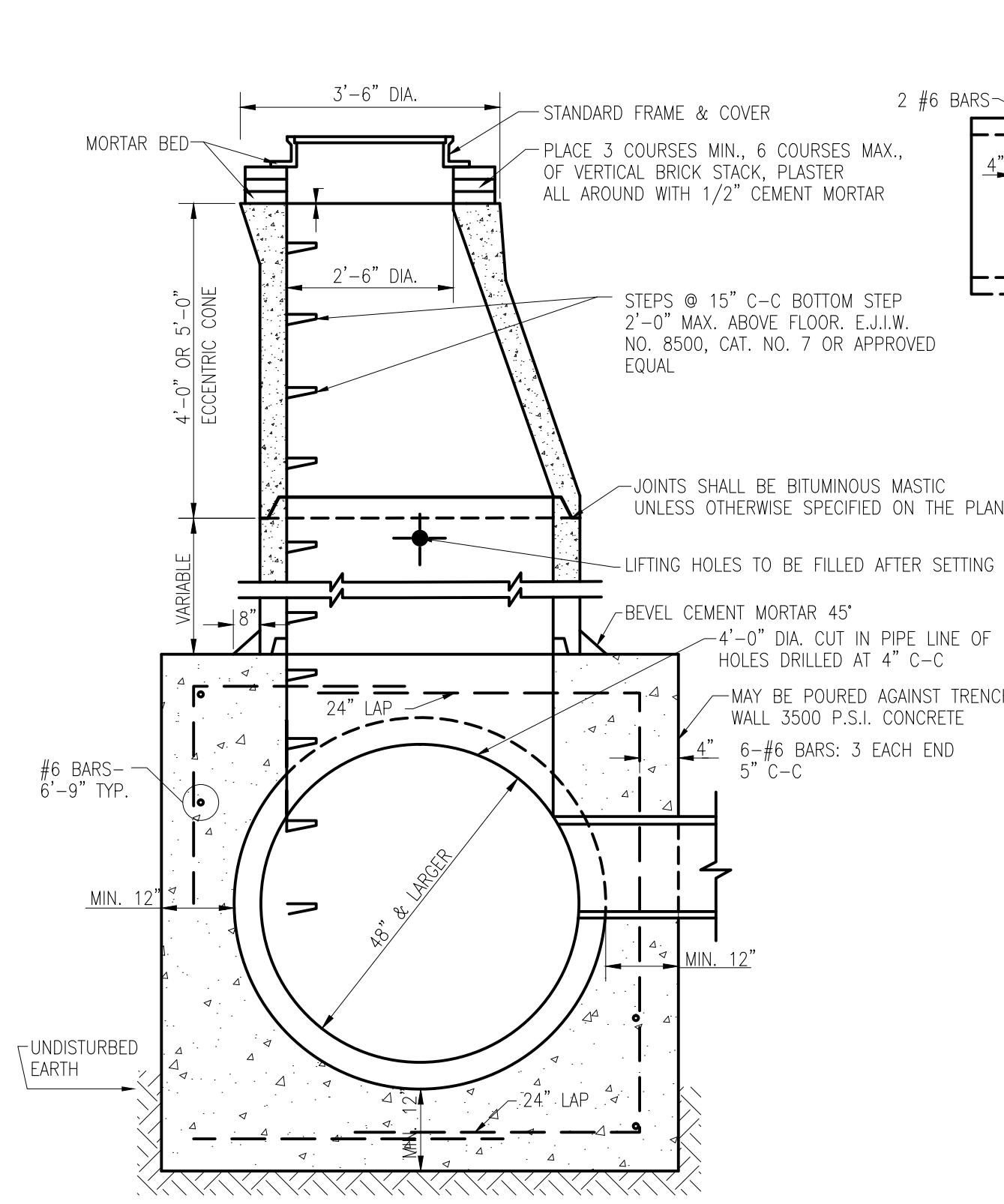
M.H. D	TOP SLAB	WALLS	REINFORCING STEEL (SLAB)
7'-0"	12"	12"	7/8" @ 9" EACH WAY
8'-0"	12"	12"	1" @ 9" EACH WAY

NOTES:
 *1. DIA. SHALL BE INCREASED AS SHOWN ON PLANS OR IN THE PROPOSAL DEPENDING ON THE ANGLE OF THE SEWERS.
 2. M.H. "D" SHALL BE USED WHERE THE DEPTH OF COVER FROM THE TOP OF CASTING TO THE TOP OF SEWER IS LESS THAN 4'-0". M.H. "D" SHALL BE CONSTRUCTED WITH A 2' SUMP WHERE DIAMETER OF OUTLET SEWER IS 24" OR LESS.



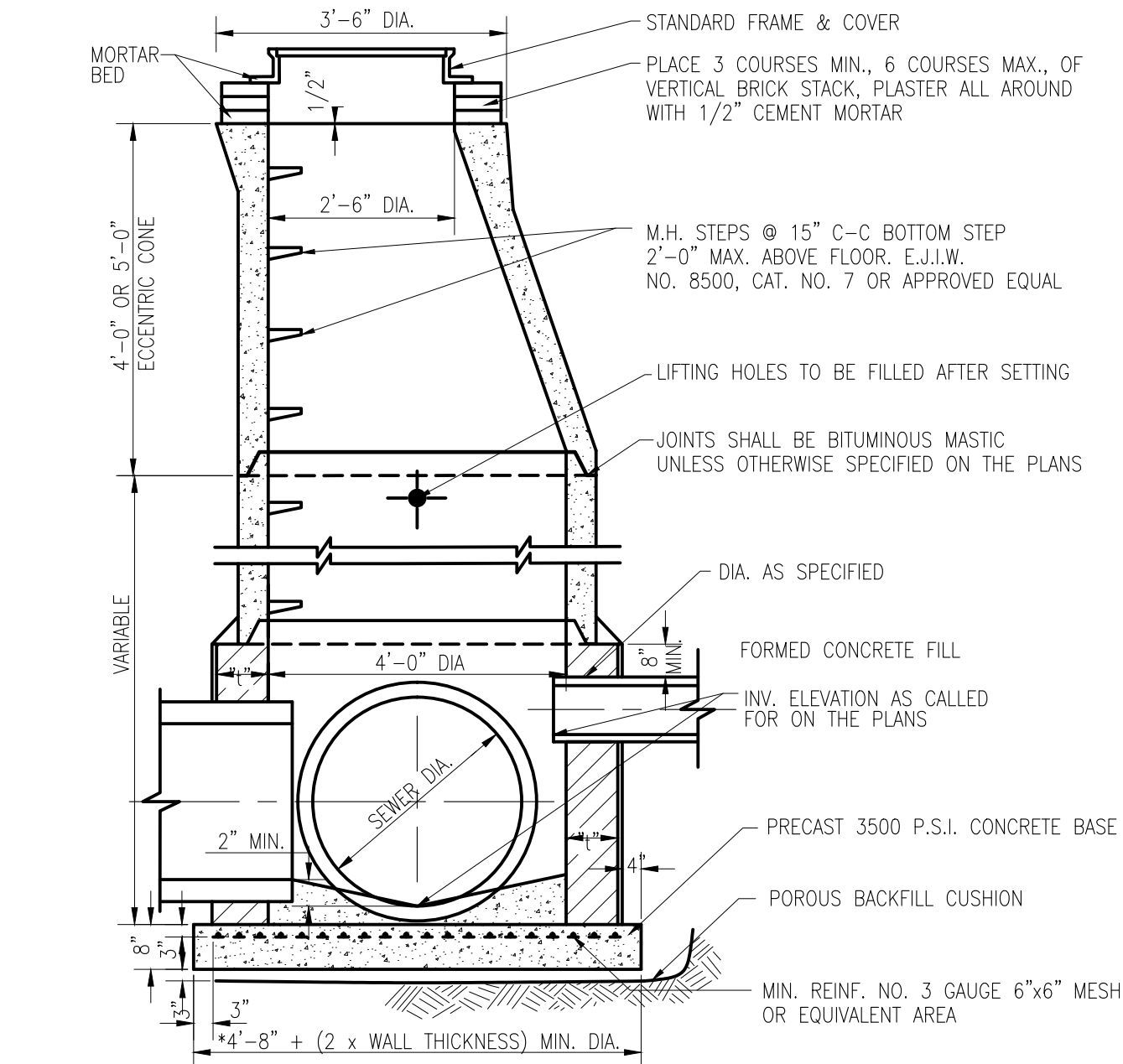
TYPICAL SECTION PRECAST MANHOLE "E"

NOTES:
 1. THIS MANHOLE SHALL BE USED ONLY WHEN MEETING CONDITIONS STATED IN THE "GENERAL MANHOLE NOTES", ITEM NO. 2A
 2. PRECAST UNITS SHALL MEET THE REQUIREMENTS SPECIFIED BY A.S.T.M. C-478-68.



TYPICAL SECTION PRECAST MANHOLE "C"

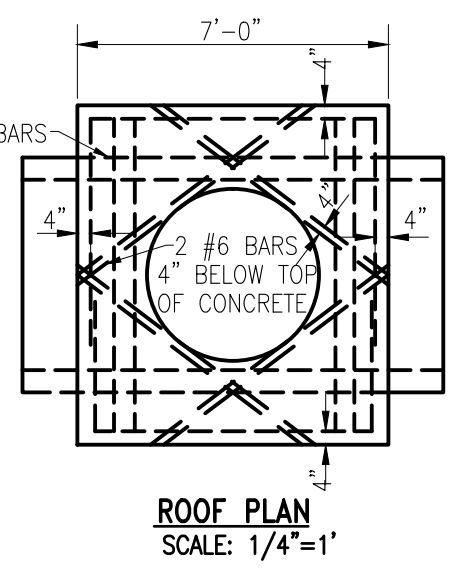
NOTES:
 1. MANHOLE "C" SHALL BE USED FOR MANHOLE STRUCTURES ON ALL STORM SEWERS WHERE 48" OR LARGER DIA. PIPES INTERSECT.
 2. PRECAST UNITS SHALL MEET THE REQUIREMENTS SPECIFIED BY A.S.T.M. C-478-68.



TYPICAL SECTION PRECAST MANHOLE "F"

NOTES:
 1. THIS MANHOLE SHALL BE USED ONLY WHEN MEETING CONDITIONS STATED IN THE "GENERAL MANHOLE NOTES", ITEM NO. 2A
 2. PRECAST UNITS SHALL MEET THE REQUIREMENTS SPECIFIED BY A.S.T.M. C-478-68.
 *3. DIAMETER OF MANHOLE SHALL BE INCREASED AS SHOWN ON PLANS OR IN THE PROPOSAL, DEPENDING ON THE DIAMETERS AND ANGLES OF THE SEWERS.

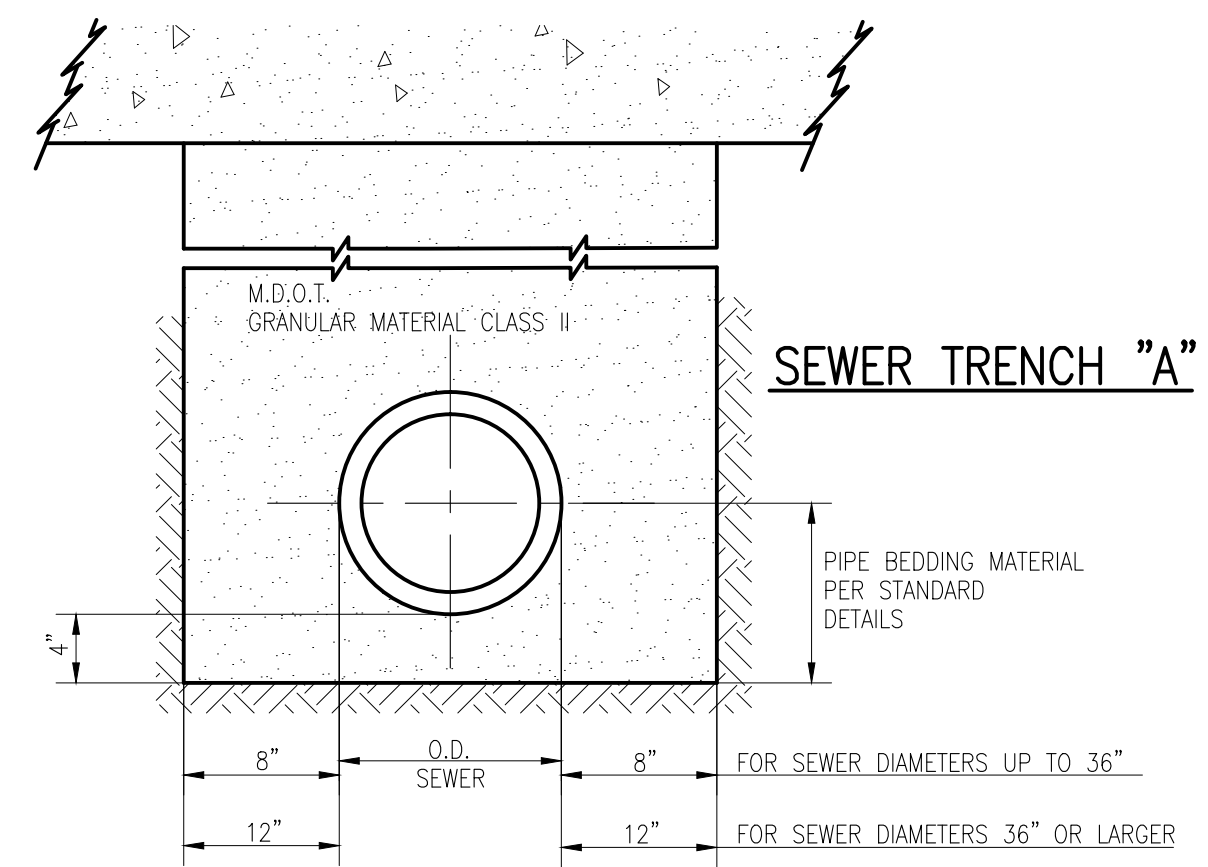
DEPTH	BRICK	CONCRETE OR BLOCK
0'-10"	8"	6"
10'-16"	12"	8"
16' & DEEPER	16"	12"



ROOF PLAN SCALE: 1/4"=1'

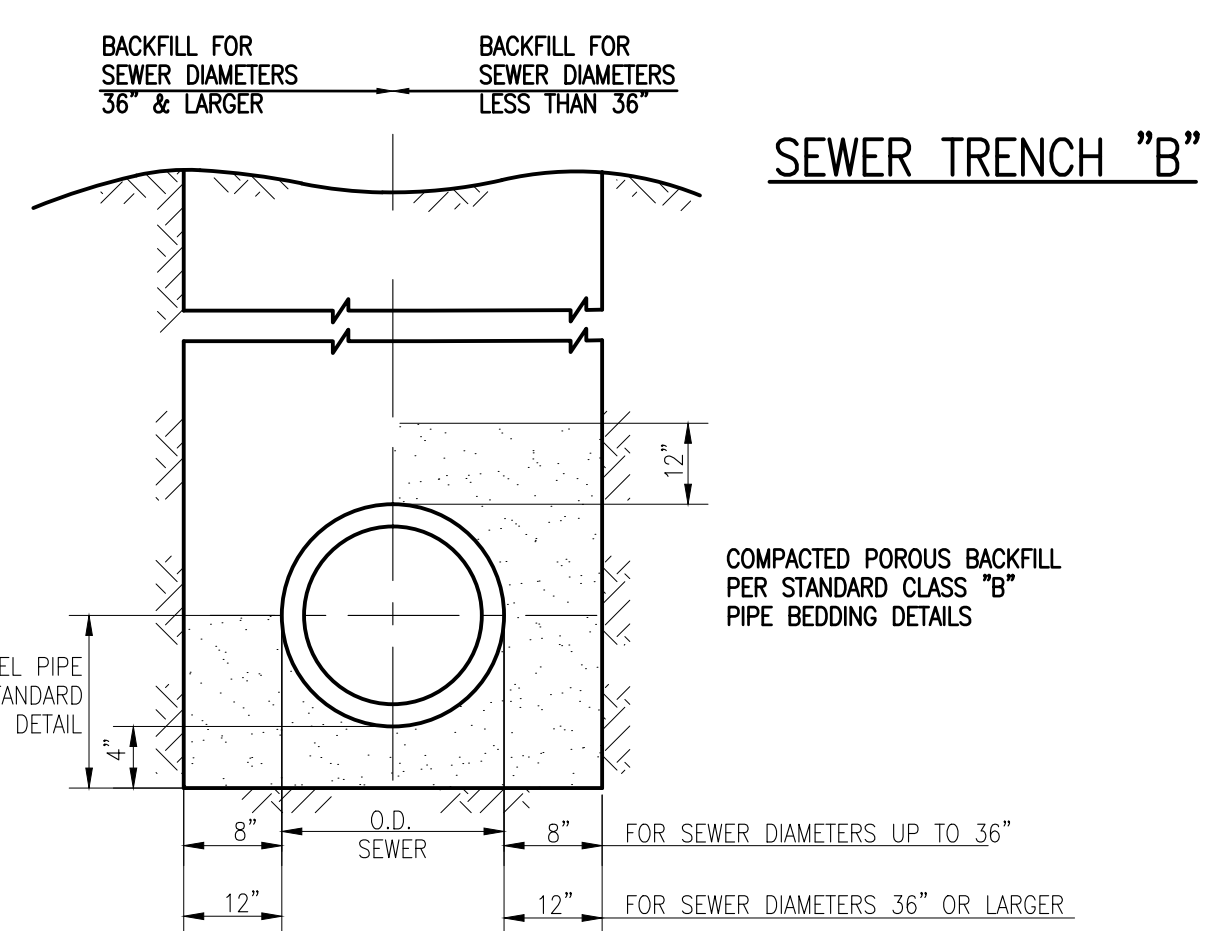
GENERAL NOTES FOR STORM SEWER MANHOLES

- ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND SPECIFICATIONS OF THE TOWNSHIP OF YPSILANTI AND YCUA.
- CONTRACTOR SHALL CONSTRUCT MANHOLES WITH PRECAST REINFORCED CONCRETE UNITS ("E", "F", AND "I") IN LIEU OF CONCRETE, BRICK AND BLOCK MANHOLES ("A" AND "B") IN ACCORDANCE WITH THE FOLLOWING CONDITIONS:
 - MAXIMUM DIAMETER OF SEWER OUTLET IN ANY PRECAST UNIT SHALL BE 18" (MANHOLE "E" ONLY).
 - NO OPENINGS SHALL BE MADE IN PRECAST UNITS WHICH WOULD LEAVE LESS THAN 24" OF UNDISTURBED PRECAST PIPE OR WOULD REMOVE MORE THAN 30% OF THE CIRCUMFERENCE ALONG ANY HORIZONTAL PLANE.
 - STRUCTURES FOR SEWERS LARGER THAN 18", OR THOSE NOT MEETING THE OPENING REQUIREMENTS, SHALL BE BUILT OF BLOCK OR BRICK UP TO A MINIMUM OF 8" ABOVE THE TOP OF SEWER, WITH PRECAST UNITS BEING USED ABOVE THIS POINT. WHERE PRECAST UNITS REST ON THE BLOCK OR BRICK, THE GROOVE IN THE PRECAST UNIT SHALL BE FILLED WITH MORTAR.
 - OPENINGS FOR THE OUTLET SEWER SHALL BE PRECAST WITH A DIAMETER OF 3 INCHES LARGER THAN THE OUTSIDE DIAMETER OF THE OUTLET PIPE. ALL OTHER OPENINGS SHALL BE MADE IN THE FIELD AFTER MANHOLE HAS BEEN CONSTRUCTED.
- ALL VERTICAL OPENINGS IN CONCRETE BLOCK STRUCTURE WALLS SHALL BE COMPLETELY FILLED WITH MORTAR. ALL VERTICAL WALL JOINTS SHALL BE CEMENT POINTED.
- A "POURED 3500 P.S.I. CONCRETE BASE" WITHOUT STEEL REINFORCEMENT MAY BE SUBSTITUTED FOR PRECAST BASE WHEN APPROVED BY THE TOWNSHIP ENGINEER. A POROUS BACKFILL CUSHION WILL NOT BE REQUIRED UNDER THE POURED BASE UNLESS CONTRACTOR HAS EXCAVATED BELOW THE REQUIRED ELEVATION, AT WHICH TIME THE ENGINEER WILL DECIDE AS TO THE MERITS OF INCREASING THE THICKNESS OF THE CONCRETE BASE OR THE USE OF A POROUS BACKFILL CUSHION.
- WHERE UNSTABLE GROUND CONDITIONS ARE ENCOUNTERED, SLAG OR STONE BEDDING SHALL BE USED AS DIRECTED BY THE ENGINEER IN ORDER TO PROVIDE A STABLE FOUNDATION FOR PIPE AND MANHOLES.
- ALL PIPES ENTERING OR LEAVING A MANHOLE SHALL BE ADEQUATELY SUPPORTED BY POURING 2500 P.S.I. CONCRETE FILL FROM UNDISTURBED EARTH TO SPRINGLINE.
- WHEREVER EXISTING MANHOLES OR SEWER PIPE ARE TO BE TAPPED, DRILL HOLES AT 4" CENTER TO CENTER AROUND PERIPHERY OR OPENING TO CREATE A PLANE OF WEAKNESS BEFORE BREAKING SECTION OUT.



SEWER TRENCH "A"

NOTES:
 1. TRENCH "A" SHALL BE USED UNDER ROAD SURFACES, PAVEMENT, SIDEWALK, CURB, AGGREGATE & PAVED DRIVES AND WHERE THE EDGE OF TRENCH IS WITHIN 3 FEET OF THE PAVEMENT
 2. GRANULAR MATERIAL SHALL BE PLACED BY THE "CONTROLLED DENSITY METHOD" OR OTHER MEANS HAVING APPROVAL OF THE ENGINEER AND IS TO BE COMPACTED TO 95% OF MAXIMUM UNIT WEIGHT



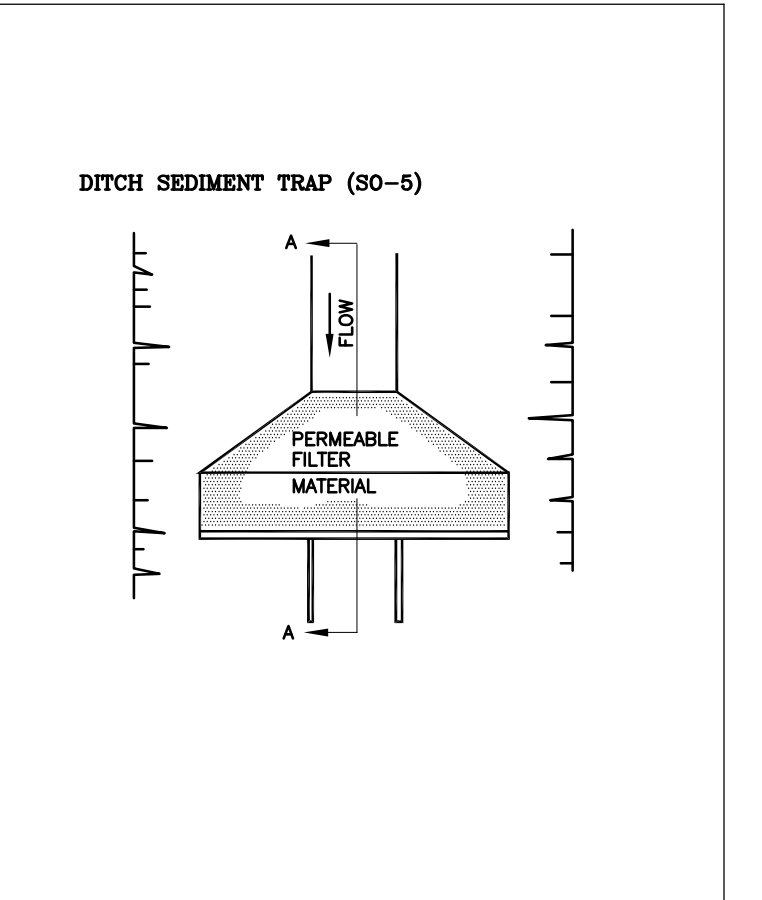
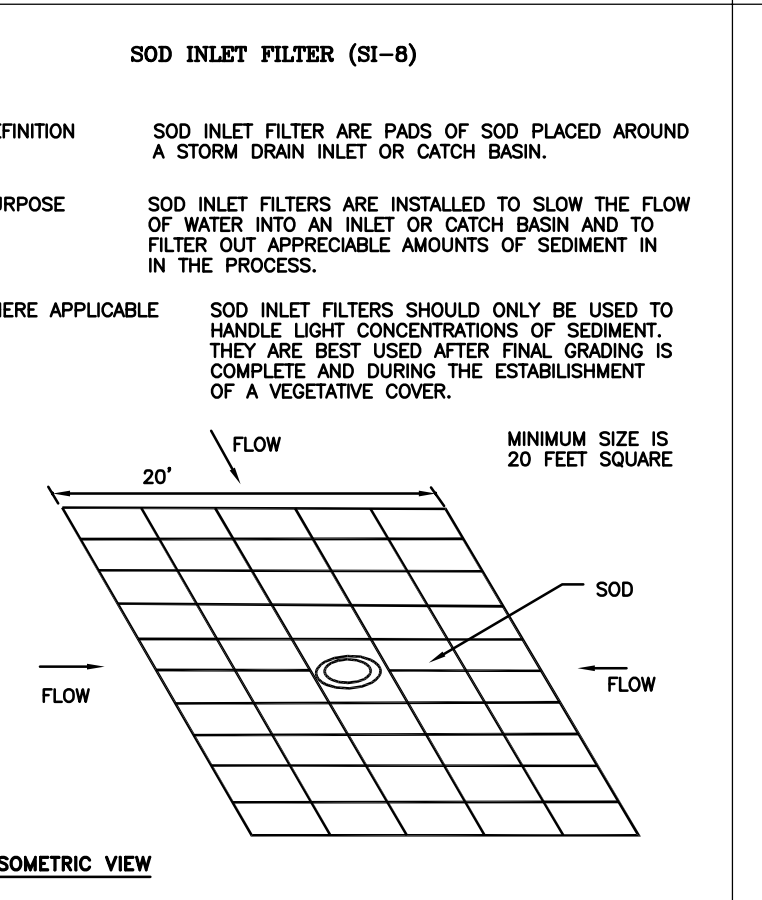
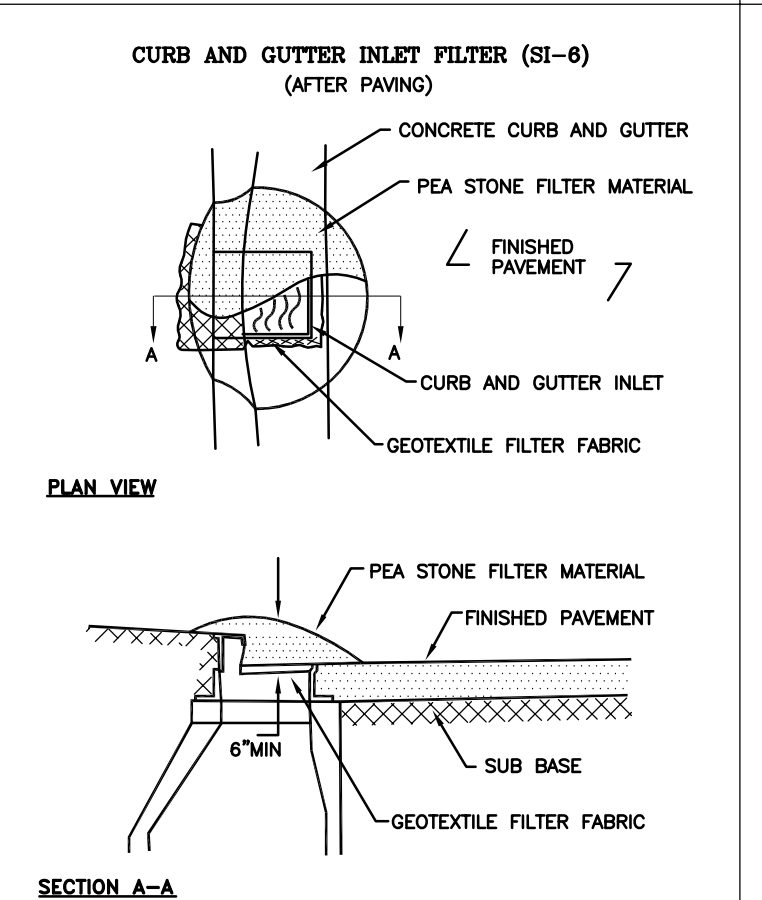
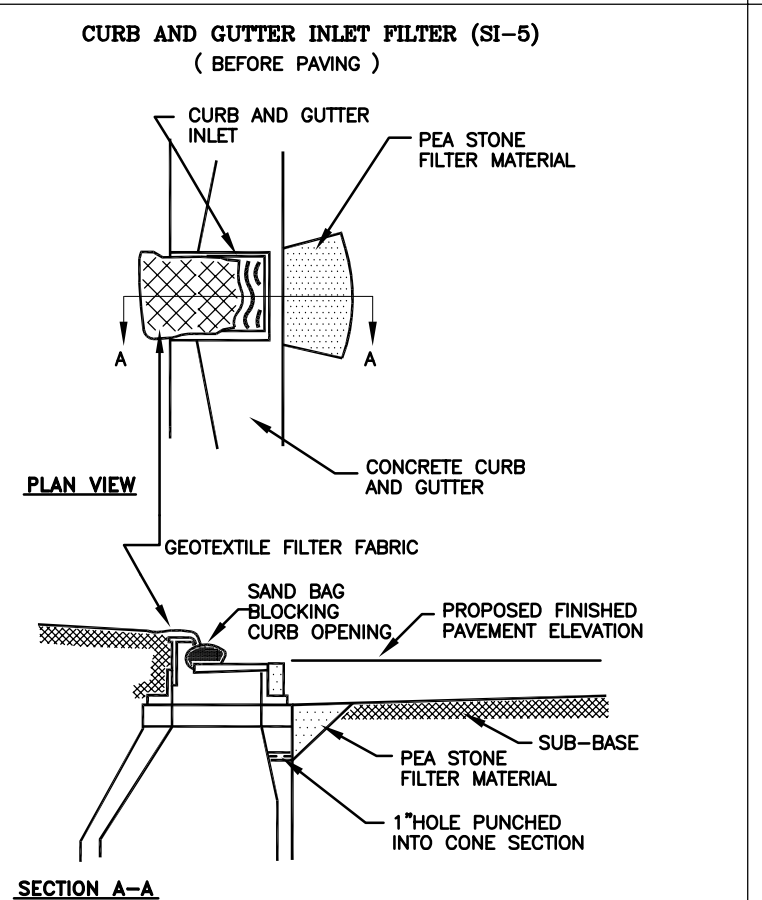
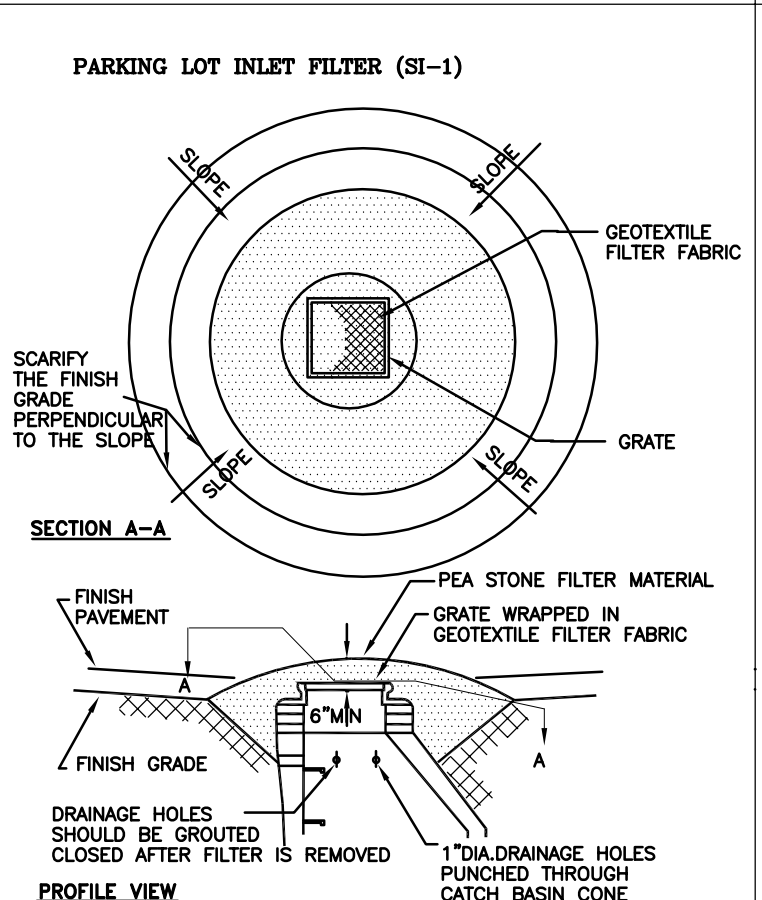
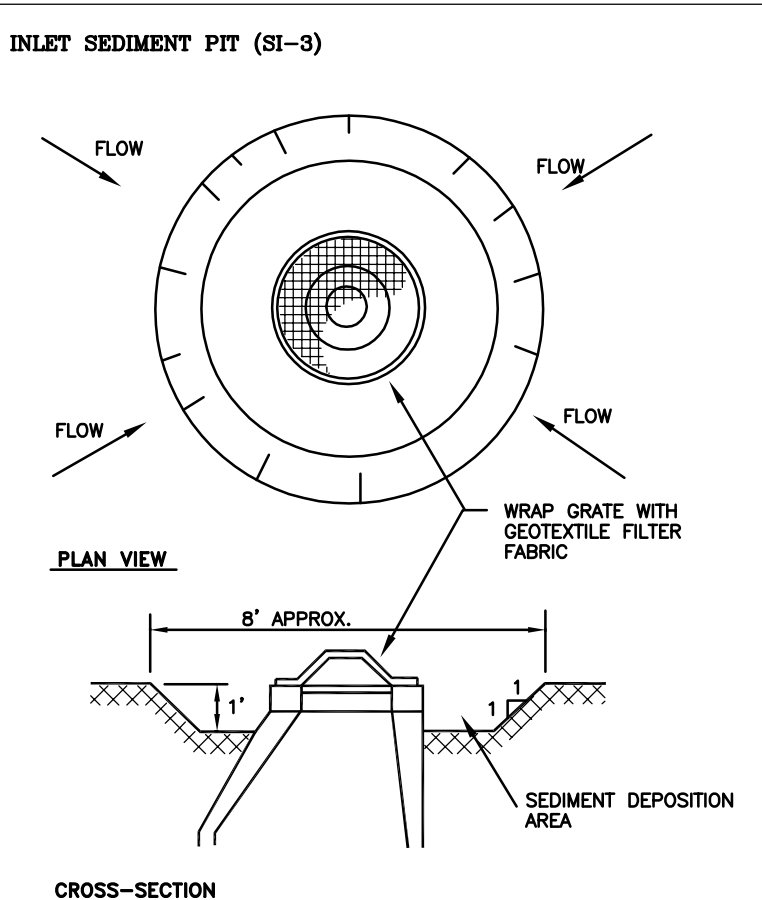
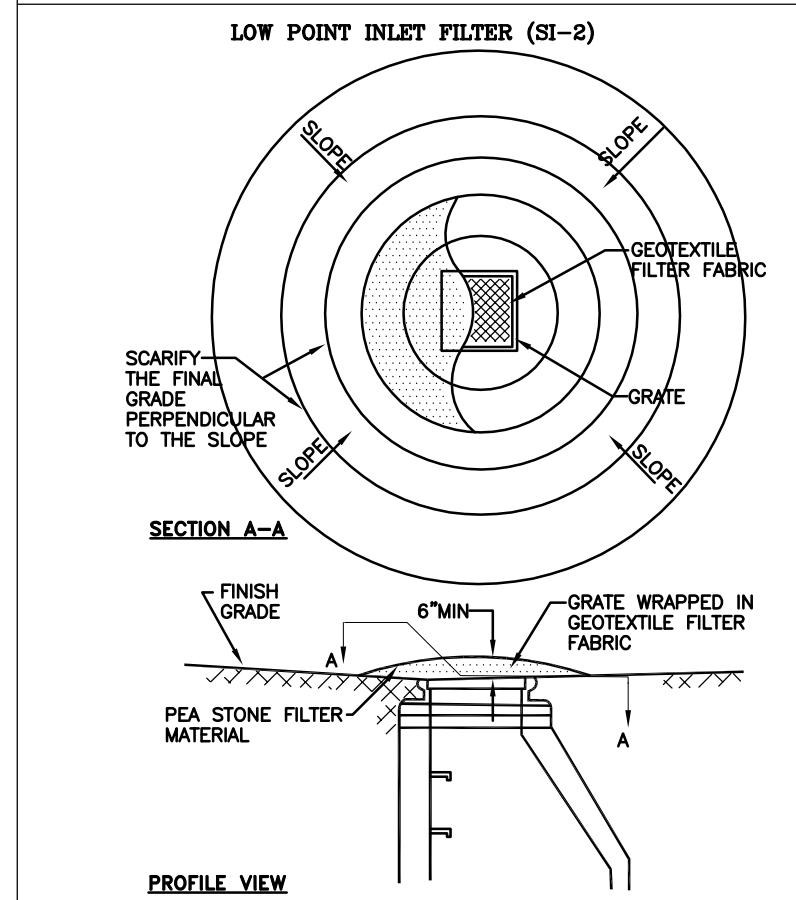
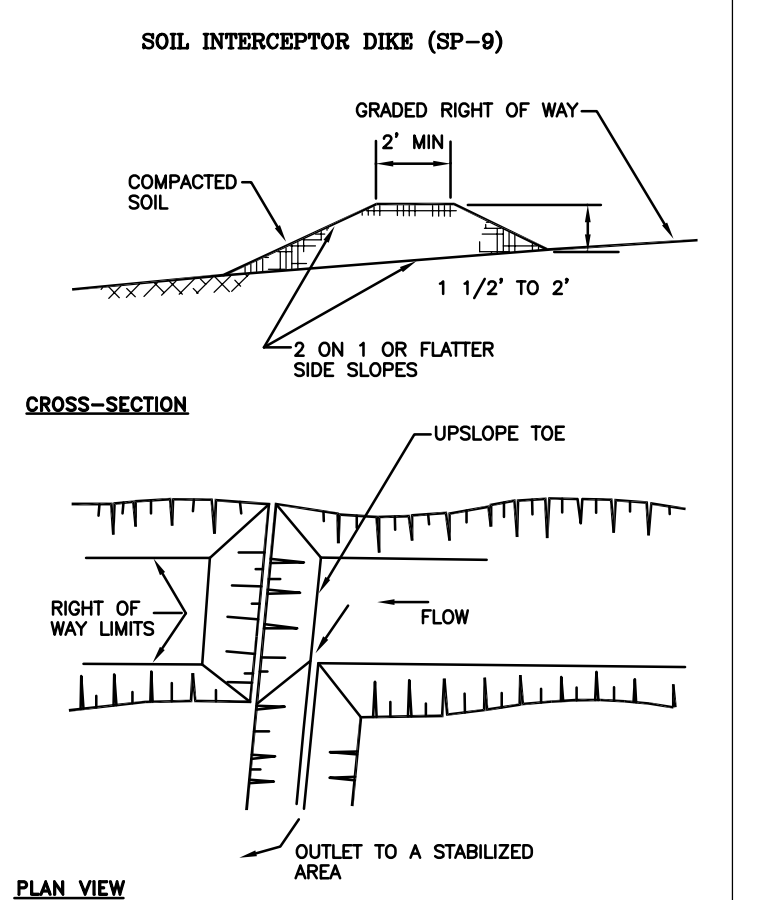
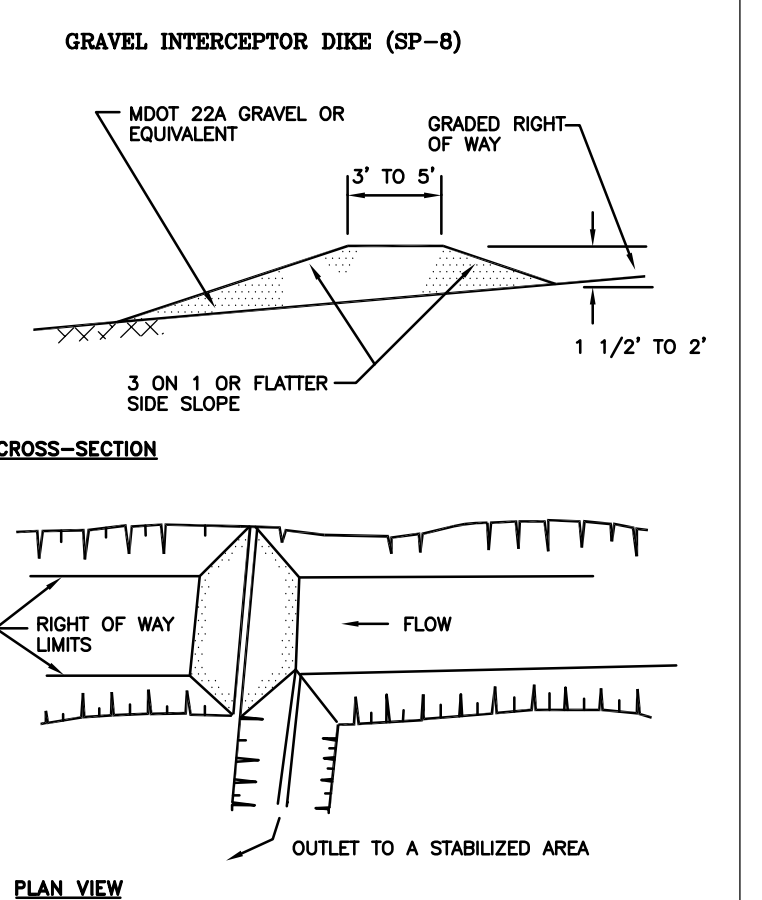
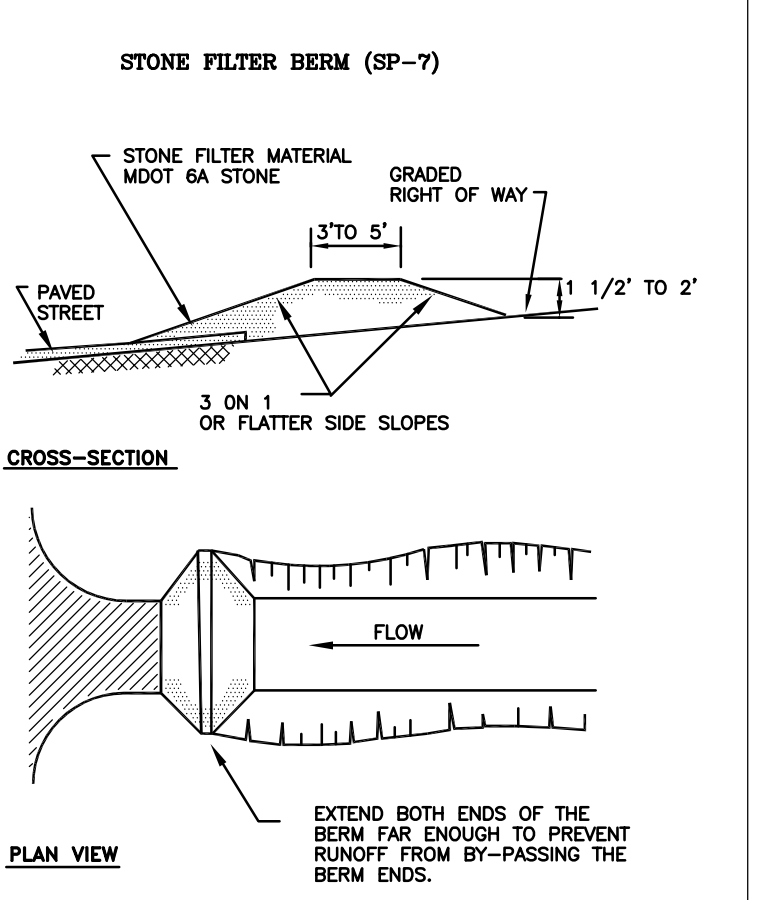
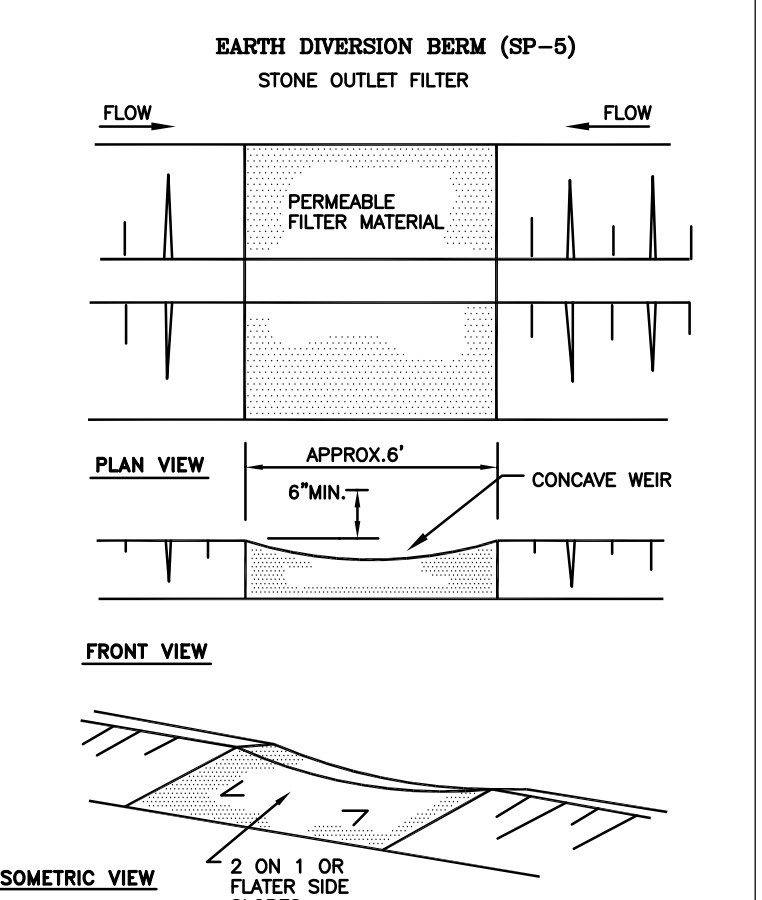
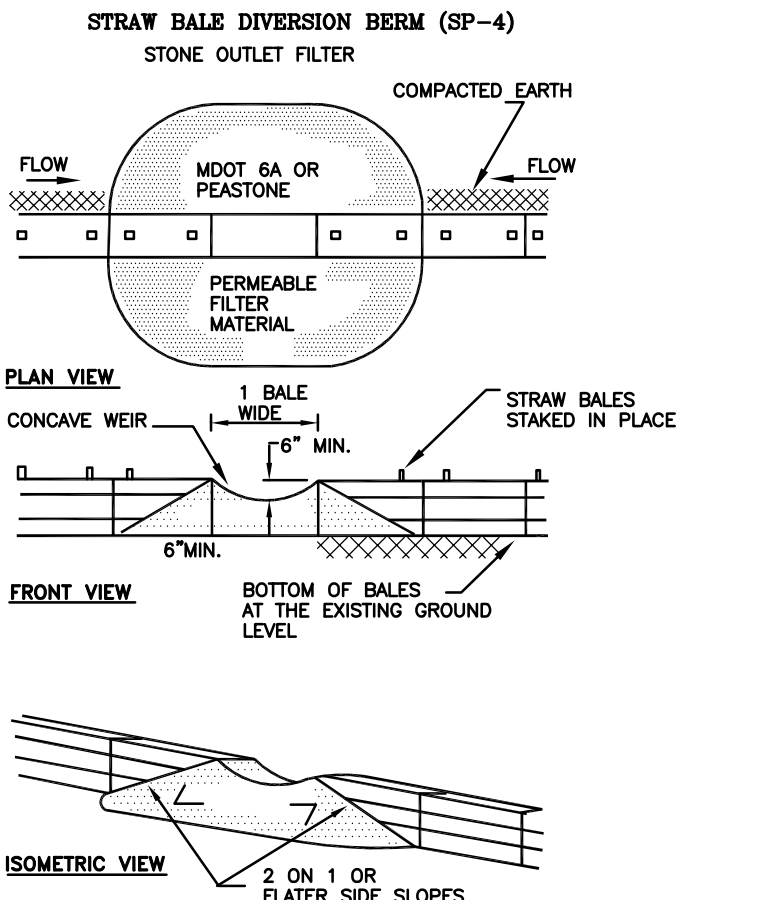
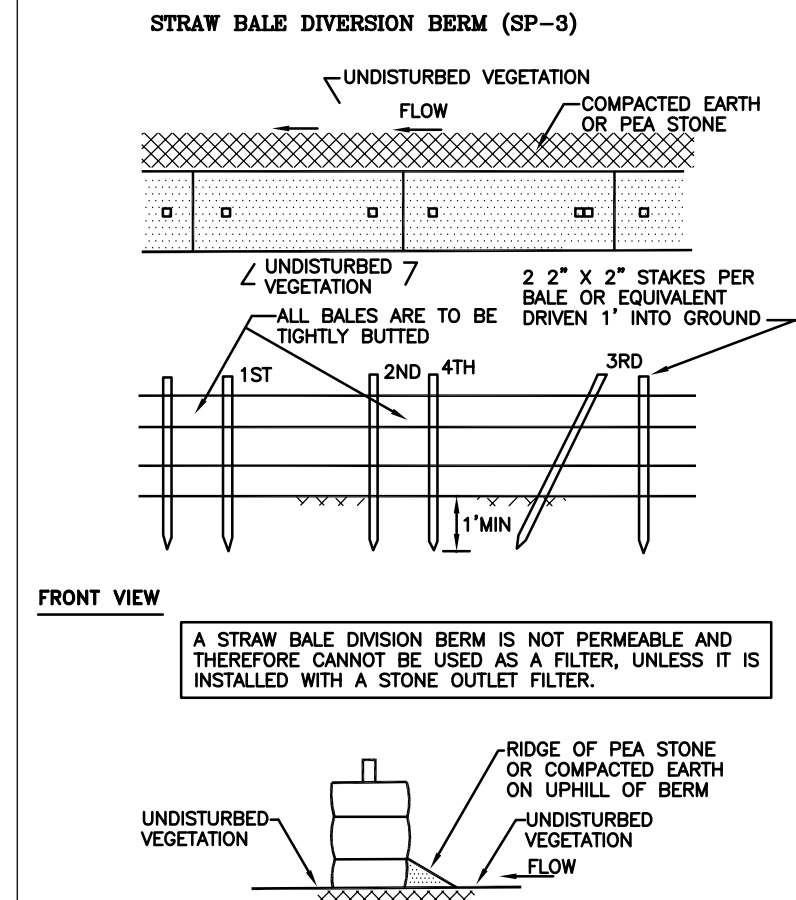
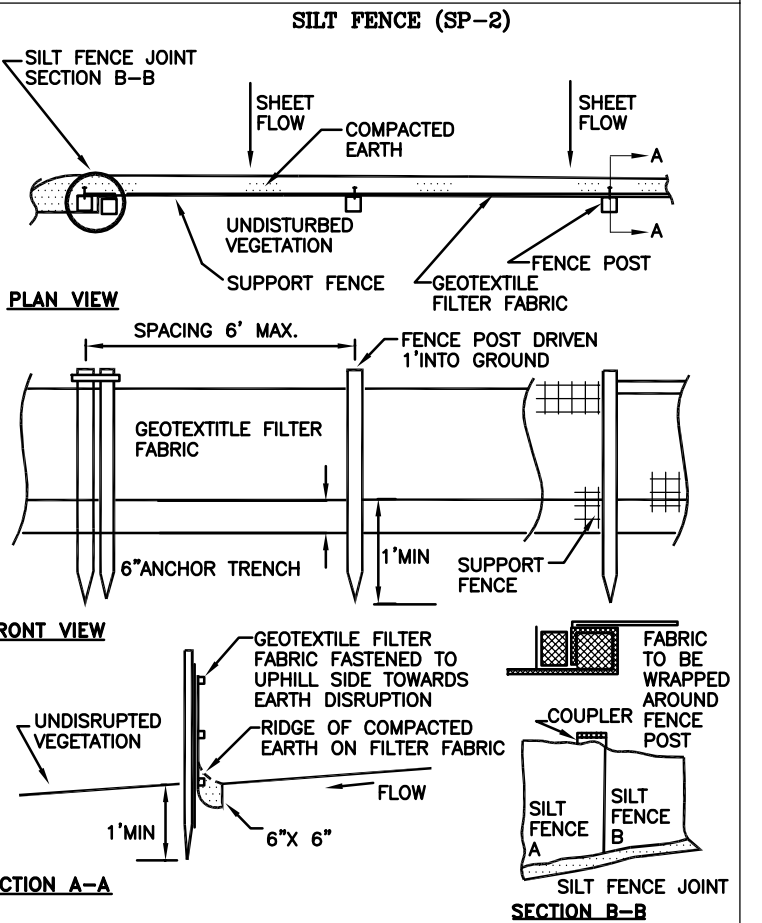
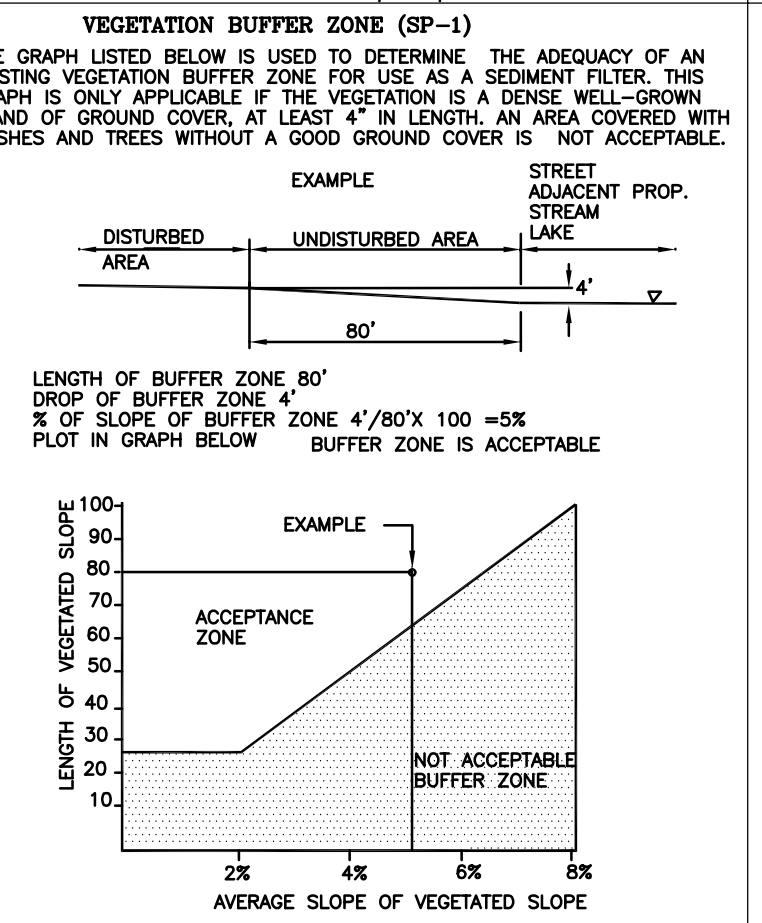
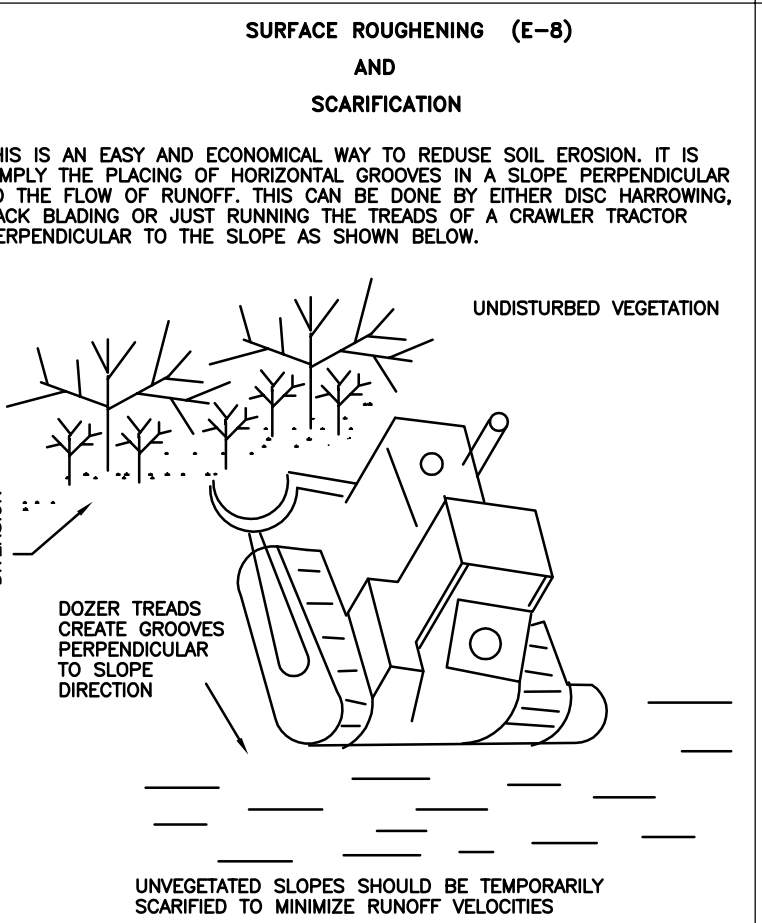
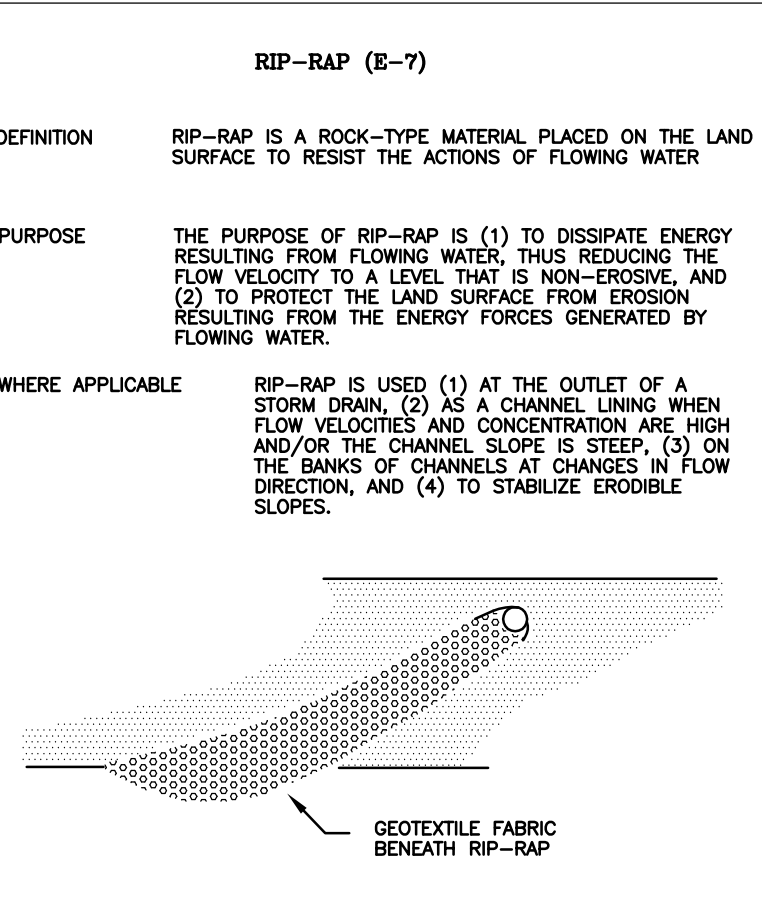
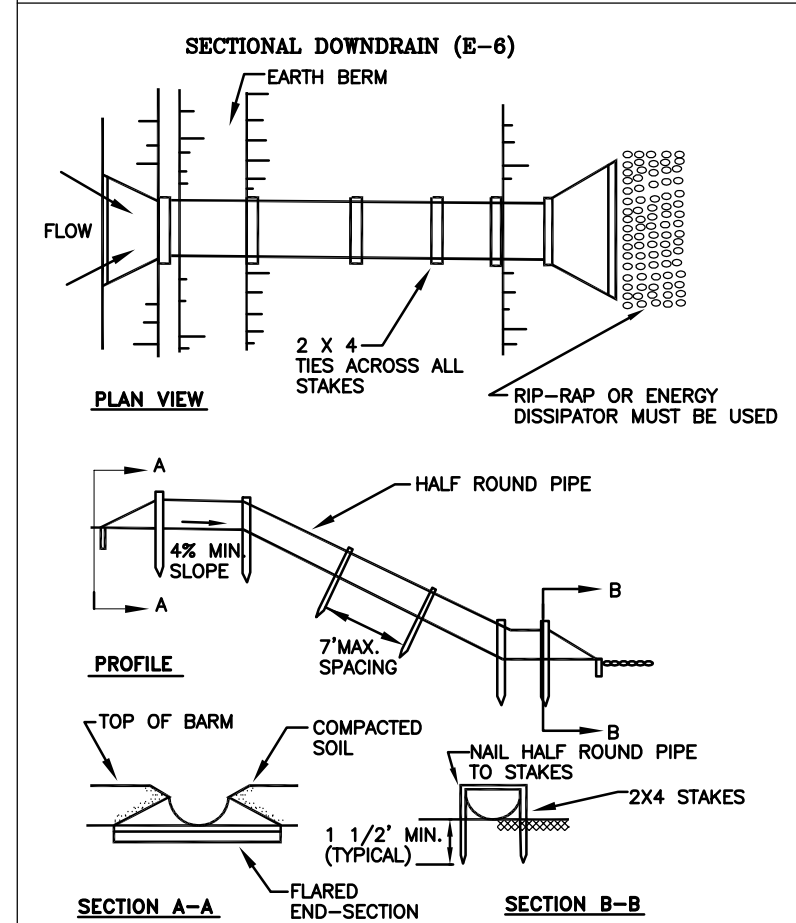
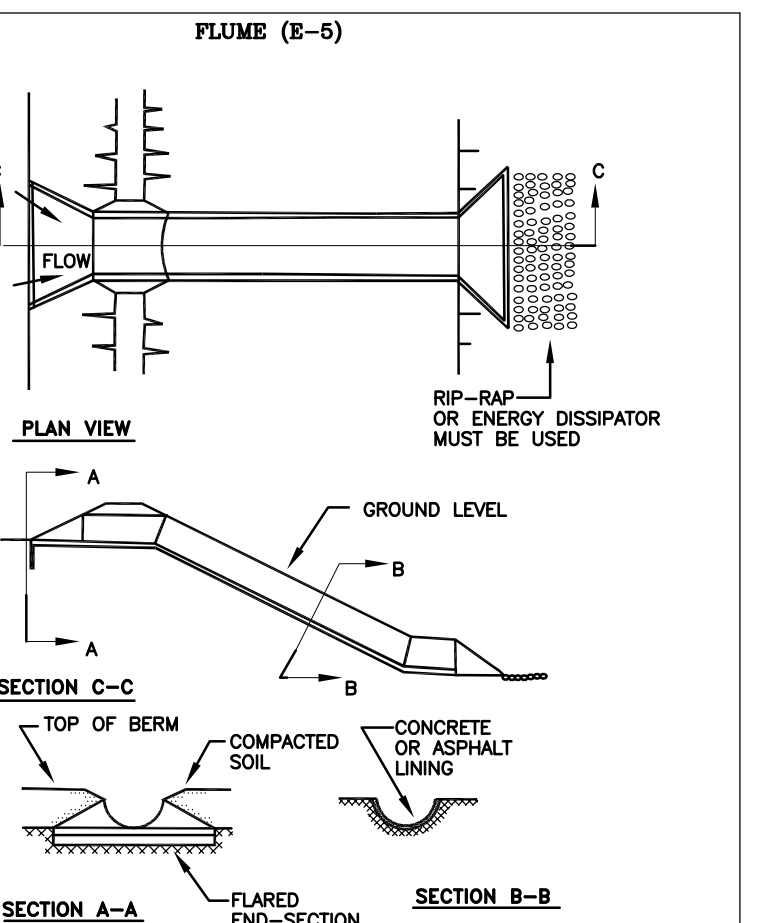
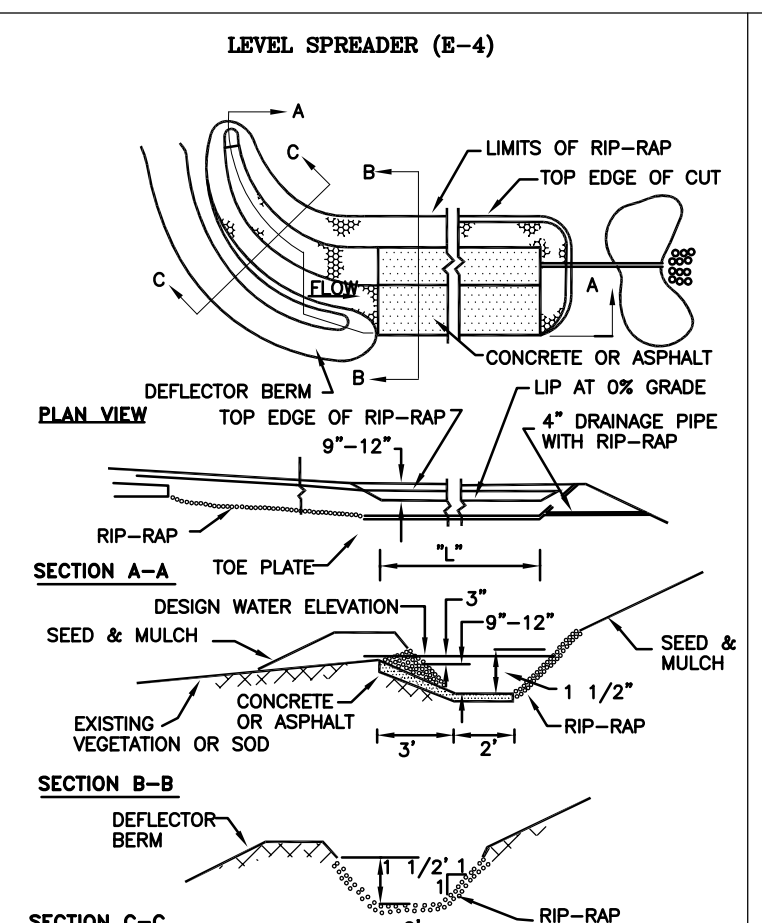
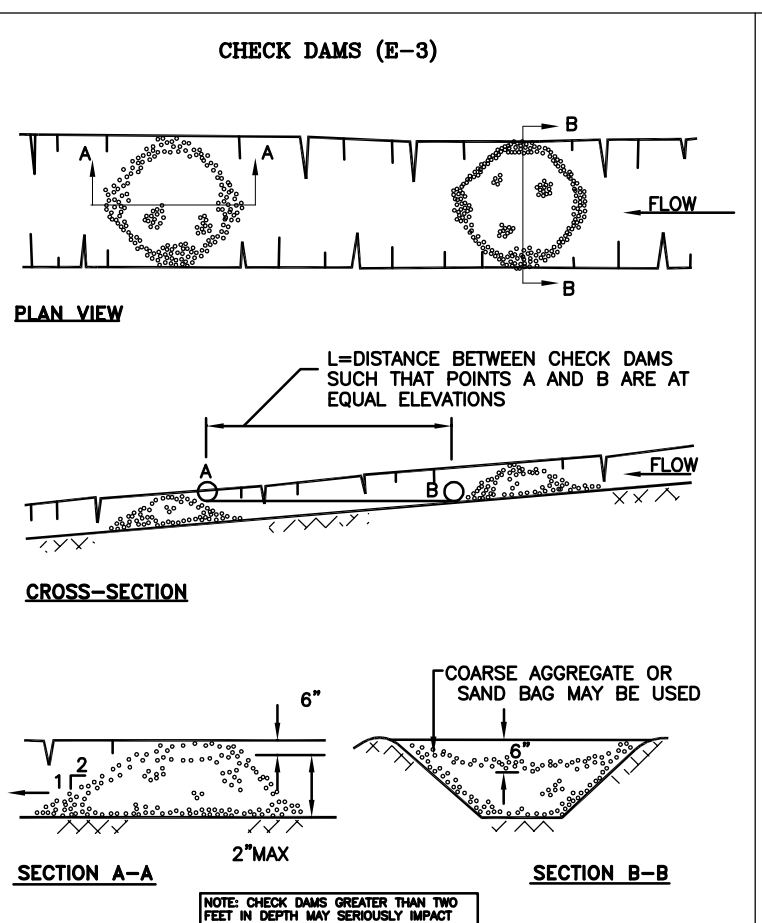
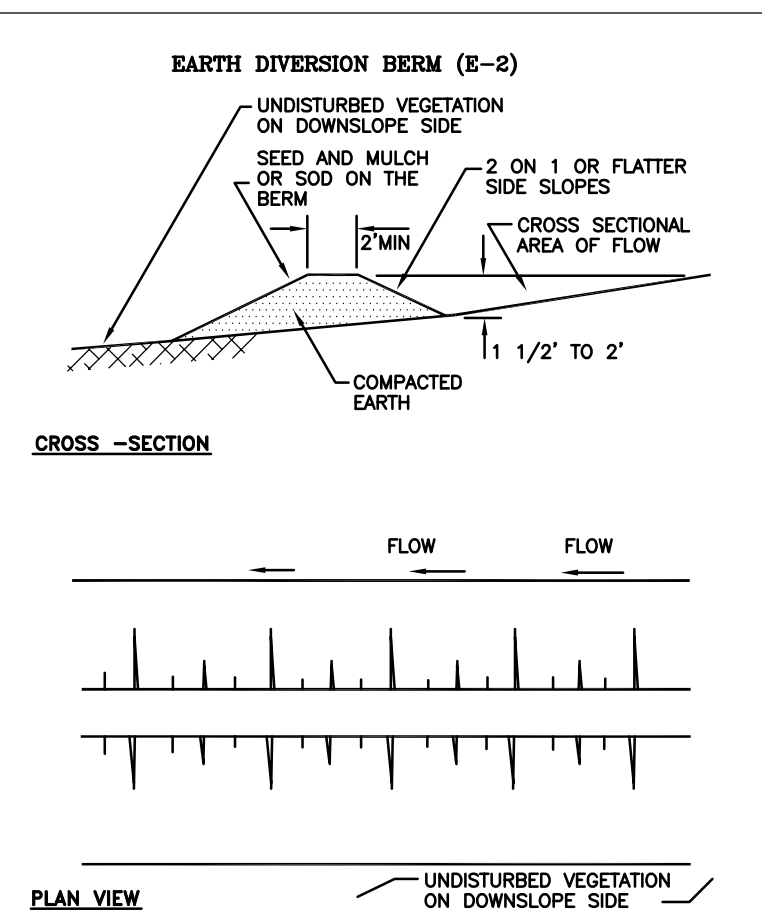
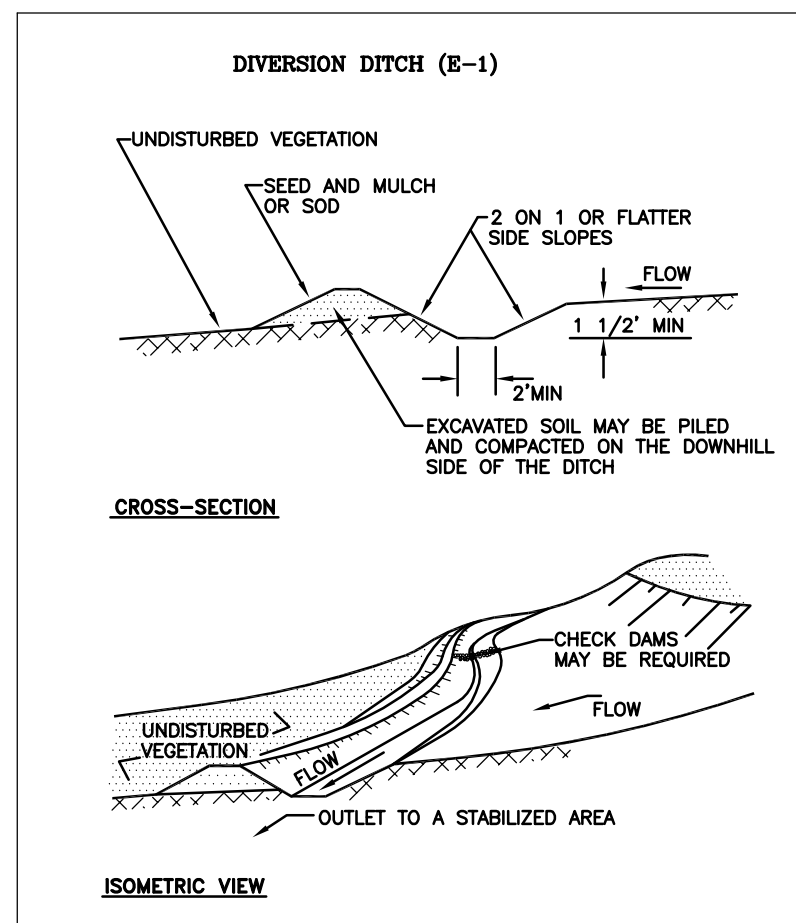
SEWER TRENCH "B"

NOTES:
 1. SUITABLE EXCAVATED BACKFILL MATERIAL SHALL BE PLACED IN ONE FOOT LAYERS AND COMPACTED BY MECHANICAL TAMPING OR OTHER EFFECTIVE MEANS HAVING APPROVAL OF THE ENGINEER, TO A DENSITY EQUIVALENT TO THE UNDISTURBED ADJACENT SOIL.
 2. TRENCH "B" SHALL BE USED UNDER CONDITIONS OTHER THAN SPECIFIED FOR TRENCH "A"

RULE 323.1703
SOIL EROSION AND SEDIMENTATION CONTROL PLAN REQUIREMENTS.

A PERSON SHALL PREPARE A SOIL EROSION AND SEDIMENTATION CONTROL PLAN FOR ANY EARTH CHANGE IDENTIFIED IN R 323.1704. A PERSON SHALL DESIGN THE PLAN TO EFFECTIVELY REDUCE ACCELERATED SOIL EROSION AND SEDIMENTATION AND SHALL IDENTIFY FACTORS THAT MAY CONTRIBUTE TO SOIL EROSION OR SEDIMENTATION, OR BOTH. THE PLAN SHALL INCLUDE, BUT NOT BE LIMITED TO, ALL OF THE FOLLOWING:

- (A) A MAP OR MAPS AT A SCALE OF NOT MORE THAN 200 FEET TO THE INCH OR AS OTHERWISE DETERMINED BY THE COUNTY OR LOCAL ENFORCING AGENCY. A MAP SHALL INCLUDE A LEGAL DESCRIPTION AND SITE LOCATION SKETCH THAT INCLUDES THE PROXIMITY OF ANY PROPOSED EARTH CHANGE TO LAKES OR STREAMS, OR BOTH; PREDOMINANT LAND FEATURES; AND CONTOUR INTERVALS OR SLOPE DESCRIPTION.
- (B) A SOILS SURVEY OR A WRITTEN DESCRIPTION OF THE SOIL TYPES OF THE EXPOSED LAND AREA CONTEMPLATED FOR THE EARTH CHANGES.
- (C) DETAILS FOR PROPOSED EARTH CHANGES, INCLUDING ALL OF THE FOLLOWING:
 - (i) A DESCRIPTION AND THE LOCATION OF THE PHYSICAL LIMITS OF EACH PROPOSED EARTH CHANGE.
 - (ii) A DESCRIPTION AND THE LOCATION OF ALL EXISTING AND PROPOSED ON-SITE DRAINAGE AND DEWATERING FACILITIES.
 - (iii) THE TIMING SEQUENCE OF EACH PROPOSED EARTH CHANGE.
 - (iv) THE LOCATION AND DESCRIPTION FOR INSTALLING AND REMOVING ALL PROPOSED TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES.
 - (v) A DESCRIPTION AND THE LOCATION OF ALL PROPOSED PERMANENT SOIL EROSION AND SEDIMENTATION MEASURES.
 - (vi) A PROGRAM PROPOSAL FOR THE CONTINUED MAINTENANCE OF ALL PERMANENT SOIL EROSION AND SEDIMENTATION CONTROL MEASURES THAT REMAIN AFTER PROJECT COMPLETION, INCLUDING THE DESIGNATION OF THE PERSON RESPONSIBLE FOR THE MAINTENANCE. MAINTENANCE RESPONSIBILITIES SHALL BECOME A PART OF ANY SALES OR EXCHANGE AGREEMENT FOR THE LAND ON WHICH THE PERMANENT SOIL EROSION CONTROL MEASURES ARE LOCATED.



REVISIONS:	ISSUE NO.	BID DATE
	B.G. DRN.	DATE
	TOPO DRN.	DESIGN
	PROFILE DRN.	ENG. DRN.
	APPROVED	SCALE
	V:	H: NTS

YPSILANTI TOWNSHIP
TOWNSHIP STANDARD
SOIL EROSION CONTROL DETAILS

ORCHARD, HILTZ & McCLIMENT, INC.

3400 Plymouth Road
Livonia, MI 48150
(734) 522-6711
(734) 522-6427 FAX

CLIENT: YPSILANTI TOWNSHIP

CLIENT: YPSILANTI TOWNSHIP DRAWING NAME: SESSC.dwg JOB #

**CHARTER TOWNSHIP OF YPSILANTI
2020 BUDGET AMENDMENT #6**

MAY 19, 2020

AMOUNTS ROUNDED UP TO THE NEAREST DOLLAR

101 - GENERAL OPERATIONS FUND

Total Increase \$16,923.00

Request to increase the budget for two streetlight installations at Crystal Pond. This will be funded by developer Lombardo Homes.

Revenues:	Contribution - Streetlights & Cameras	101-000-000-675.002	\$1,932.00
			\$1,932.00
			\$1,932.00
Expenditures:	Streetlight Construction	101-956-000-926.050	\$1,932.00
			\$1,932.00
			\$1,932.00

Request to increase the budget for two cameras and installation at Crystal Pond. This will be funded by the developer Lombardo Homes.

Revenues:	Contribution - Streetlights & Cameras	101-000-000-675.002	\$14,991.00
			\$14,991.00
			\$14,991.00
Expenditures:	Capital Outlay - Cameras	101-970-000-972.000	\$14,991.00
			\$14,991.00
			\$14,991.00

893 - NUISANCE ABATEMENT FUND

\$20,000.00

Request to increase the budget for clean up and mowing of blighted properties. We have experienced above normal clean up costs in the area that may be attributed to the current pandemic. Property owners will be invoiced for the services performed. This will initially be funded by an Appropriation of Prior Year Fund Balance.

Revenues:	Prior Year Fund Balance	893-000-000-699.000	\$20,000.00
			\$20,000.00
			\$20,000.00
Expenditures:	Blight Enforcement Costs	893-893-000-806.001	\$20,000.00
			\$20,000.00
			\$20,000.00

Motion to Amend the 2020 Budget (#6)

Move to increase the General Fund budget by \$16,923 to \$9,632,494 and approve the department line item changes as outlined.

Move to increase the Nuisance Abatement Fund budget by \$20,000 to \$95,743 and approve the department line item changes as outlined.

AUTHORIZATIONS AND BIDS

Supervisor
BRENDA L. STUMBO
Clerk
KAREN LOVEJOY ROE
Treasurer
LARRY J. DOE
Trustees
STAN ELDRIDGE
HEATHER JARRELL ROE
MONICA ROSS-WILLIAMS
JIMMIE WILSON, JR.



Charter Township of Ypsilanti
Residential Services Department

7200 S. Huron River Drive
Ypsilanti, MI 48197
Phone: (734) 484-0073
Fax: (734)544-3501

www.ytown.org

MEMORANDUM

TO: Ypsilanti Township Board of Trustees

FROM: Mike Hoffmeister, Director – Residential Services Department

DATE: May 8 2020

RE: **Request authorization to seek sealed bids for an emergency repair of a Storm Sewer Pipe at Loonfeather Point Park.**

The Residential Services Department is requesting the Ypsilanti Township Board of Trustees to consider authorization to see sealed bids for an emergency repair of a storm sewer pipe at Loonfeather Point Park. This is located between shelter #1 and Ford Lake. There is currently a sinkhole approximately halfway down the slope towards the lake. Township staff have secured the area with posts and caution tape. Both YCUA and Washtenaw County Water Resources have looked at this issue. Both have requested that a full replacement is necessary of this section of storm sewer.

Respectfully Submitted,

Mike Hoffmeister
Director of Residential Services

Division	Section Title	Pages
BIDDING / CONTRACT DOCUMENTS (EJCDC)		
C-111	ADVERTISEMENT	1
C-200	INSTRUCTIONS TO BIDDERS	8
C-220	AFFIDAVIT OF COMPLIANCE IRAN LINKED BUSINESS	1
C-410	BID FORM	5
C-510	NOTICE OF AWARD	1
C-520	AGREEMENT STIPULATED PRICE	8
C-550	NOTICE TO PROCEED	1
C-610	PERFORMANCE BOND	3
C-615	PAYMENT BOND	4
C-617	MAINTENANCE BOND	2
C-620	CONTRACTORS APPLICATION FOR PAYMENT	2
C-625	CERTIFICATE OF SUBSTANTIAL COMPLETION	1
C-700	GENERAL CONDITIONS	65
C-800	SUPPLEMENTARY CONDITIONS	6
C-940	WORK CHANGE DIRECTIVE	1
C-941	CHANGE ORDER	1
C-942	FIELD ORDER	1

Division	Section Title	Pages
DIVISION 01 - GENERAL REQUIREMENTS		
01 10 00	SUMMARY	2
01 20 00	PRICE AND PAYMENT PROCEDURES	5
01 25 00	SUBSTITUTION PROCEDURES	2
01 30 00	ADMINISTRATIVE REQUIREMENTS	2
01 33 00	SUBMITTAL PROCEDURES	4
01 40 00	QUALITY REQUIREMENTS	2
01 60 00	PRODUCT REQUIREMENTS	2
01 70 00	EXECUTION AND CLOSEOUT REQUIREMENTS	3
DIVISION 31 - EARTHWORK		
31 05 13	SOILS FOR EARTHWORK	3
31 05 19.13	GEOTEXTILES FOR EARTHWORK	5
31 10 00	SITE CLEARING	2
31 23 16.13	TRENCHING	5
31 25 00	EROSION AND SEDIMENTATION CONTROLS	4
31 37 16.13	RUBBLE-STONE RIPRAP	2

DIVISION 32 - EXTERIOR IMPROVEMENTS

32 91 19	LANDSCAPE GRADING	3
32 92 23	SODDING	5
DIVISION 33 - UTILITIES		
33 05 61	CONCRETE MANHOLES	9
33 42 00	STORMWATER CONVEYANCE	6
APPENDICES		
A	LIVING WAGE ORDINANCE	3
B	PREVAILING WAGE ORDINANCE	2

END OF TABLE OF CONTENTS

DRAFT - FOR REVIEW

CHARTER TOWNSHIP OF YPSILANTI
YPSILANTI, MICHIGAN
LOONFEATHER POINT PARK STORM SEWER REPAIR

ADVERTISEMENT FOR BIDS

Sealed Bids for the construction of the Loonfeather Point Park Storm Sewer Repair will be received by the Ypsilanti Township Clerk's Office, at 7200 S. Huron River Dr., Ypsilanti, MI 48197, until **[insert time for receipt of bids]** local time on **[insert date for receipt of bids]**, at which time the Bids received will be publicly opened and read. The Project consists of replacement of a damaged storm sewer pipe and manhole at Loonfeather Point Park. Major pay items include:

182 lft	Sewer, Rem, Less than 24 inch
182 lft	Sewer, C1 II, 15 inc, Tr Det A
1 Ea	Dr Structure, 48 inch dia

The issuing Office for the Bidding Documents is: **Spicer Group, Inc., 125 Helle Blvd., Suite 2, Dundee, Michigan, 48131, Kevin Wilks, P.E., kevinw@spicergroup.com, (616) 550-7837**. Electronic copies of plans, proposal forms and specifications are available on the Bidding section of the Spicer Group website at www.spicergroup.com. You may view the digital project bidding documents for free by entering Quest project number **<enter eBidDoc#>** on the website's project search page. Documents may be downloaded at no cost. Please contact Quest CDN Customer Support at (952) 233-1632 or info@questcdn.com for assistance in free membership registration, downloading and working with digital project information.

Use the Bid Form in the specifications for submittal of sealed bids. All addenda will also be posted to this website. The Contractor is responsible for ensuring all addenda have been received and acknowledged prior to submittal of the bid. No paper copies of these documents will be available for purchase.

Bid security shall be furnished in accordance with the Instructions to Bidders.

Owner: **Charter Township of Ypsilanti**

By: **Karen Lovejoy Roe**

Title: **Clerk**

Date: **[Date of initial publication of Advertisement]**

++ END OF ADVERTISEMENT FOR BIDS ++

INSTRUCTIONS TO BIDDERS

ARTICLE 1 – DEFINED TERMS

1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:

A. *Issuing Office* – The office from which the Bidding Documents are to be issued.

ARTICLE 2 – COPIES OF BIDDING DOCUMENTS

2.01 Complete sets of the Bidding Documents may be obtained from the Issuing Office in the number and format stated in the advertisement or invitation to bid.

2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.03 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not authorize or confer a license for any other use.

ARTICLE 3 – QUALIFICATIONS OF BIDDERS

3.01 To demonstrate Bidder's qualifications to perform the Work, after submitting its Bid and within 3 days of Owner's request, Bidder shall submit (a) written evidence establishing its qualifications such as financial data, previous experience, and present commitments, and (b) the following additional information:

3.02 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.

3.03 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

3.04 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.

ARTICLE 4 – SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

4.01 *Site and Other Areas*

A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.

4.02 *Existing Site Conditions*

A. Subsurface and Physical Conditions; Hazardous Environmental Conditions

1. The Supplementary Conditions identify:

- a. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site.
 - b. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
 - c. reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.
 - d. Technical Data contained in such reports and drawings.
2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.
 3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.
- B. Underground Facilities: Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site are set forth in the Contract Documents and are based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.
- C. Adequacy of Data: Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions, and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated subsurface or physical conditions appear in Paragraphs 5.03, 5.04, and 5.05 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work, appear in Paragraph 5.06 of the General Conditions.

4.03 *Site Visit and Testing by Bidders*

- A. Bidder shall conduct the required Site visit during normal working hours, and shall not disturb any ongoing operations at the Site.
- B. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site.
- C. Bidder shall comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.
- D. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

4.04 *Owner's Safety Program*

- A. Site visits and work at the Site may be governed by an Owner safety program. As the General Conditions indicate, if an Owner safety program exists, it will be noted in the Supplementary Conditions.

4.05 *Other Work at the Site*

- A. Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If Owner is party to a written contract for such other work, then on request, Owner will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

ARTICLE 5 – BIDDER'S REPRESENTATIONS

5.01 It is the responsibility of each Bidder before submitting a Bid to:

- A. examine and carefully study the Bidding Documents, and any data and reference items identified in the Bidding Documents;
- B. visit the Site, conduct a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfy itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;
- C. become familiar with and satisfy itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work;
- D. carefully study all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings;
- E. consider the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs;
- F. agree, based on the information and observations referred to in the preceding paragraph, that at the time of submitting its Bid no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;
- G. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;
- H. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder;

- I. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work; and
- J. agree that the submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 6 – PRE-BID CONFERENCE

6.01 No pre-bid conference will be held for this project.

ARTICLE 7 – INTERPRETATIONS AND ADDENDA

7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all parties recorded as having received the Bidding Documents. Questions received less than seven days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

7.02 Addenda may be issued to clarify, correct, supplement, or change the Bidding Documents.

ARTICLE 8 – BID SECURITY

8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of 5 percent of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a certified check, bank money order, or a Bid bond issued by a surety meeting the requirements of Paragraphs 6.01 and 6.02 of the General Conditions.

8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract Documents, furnished the required contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited. Such forfeiture shall be Owner's exclusive remedy if Bidder defaults.

8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date of the Contract or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.

8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within seven days after the Bid opening.

ARTICLE 9 – CONTRACT TIMES

9.01 The number of days within which, or the dates by which the Work is to be substantially completed and ready for final payment are set forth in the Agreement.

ARTICLE 10 – LIQUIDATED DAMAGES

- 10.01 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 11 – SUBSTITUTE AND “OR-EQUAL” ITEMS

- 11.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the bidding and Contract award process of possible substitute or “or-equal” items. In cases in which the Contract allows the Contractor to request that Engineer authorize the use of a substitute or “or-equal” item of material or equipment, application for such acceptance may not be made to and will not be considered by Engineer until after the Effective Date of the Contract.
- 11.02 All prices that Bidder sets forth in its Bid shall be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of “or-equal” or substitution requests are made at Bidder’s sole risk.

ARTICLE 12 – SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 12.01 A Bidder shall be prepared to retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of the Work if required by the Bidding Documents (most commonly in the Specifications) to do so. If a prospective Bidder objects to retaining any such Subcontractor, Supplier, or other individual or entity, and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.
- 12.02 Subsequent to the submittal of the Bid, Owner may not require the Successful Bidder or Contractor to retain any Subcontractor, Supplier, or other individual or entity against which Contractor has reasonable objection.
- 12.03 The apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner a list of the Subcontractors or Suppliers proposed for the project.

If requested by Owner, such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, or other individual or entity. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder shall submit a substitute, Bidder’s Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.

- 12.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, or other individuals or entities. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.06 of the General Conditions.

ARTICLE 13 – PREPARATION OF BID

- 13.01 The Bid Form is included with the Bidding Documents.

- A. All blanks on the Bid Form shall be completed in ink and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.
 - B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words “No Bid” or “Not Applicable.”
- 13.02 A Bid by a corporation shall be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation shall be shown.
- 13.03 A Bid by a limited liability company shall be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown.
- 13.04 A Bid by an individual shall show the Bidder’s name and official address.
- 13.05 A Bid by a joint venture shall be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown.
- 13.06 All names shall be printed in ink below the signatures.
- 13.07 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.
- 13.08 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.
- 13.09 The Bid shall contain evidence of Bidder’s authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such authority and qualification prior to award of the Contract and attach such covenant to the Bid. Bidder’s state contractor license number, if any, shall also be shown on the Bid Form.

ARTICLE 14 – BASIS OF BID

14.01 *Unit Price*

- A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form.
- B. The “Bid Price” (sometimes referred to as the extended price) for each unit price Bid item will be the product of the “Estimated Quantity” (which Owner or its representative has set forth in the Bid Form) for the item and the corresponding “Bid Unit Price” offered by the Bidder. The total of all unit price Bid items will be the sum of these “Bid Prices”; such total will be used by Owner for Bid comparison purposes. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

ARTICLE 15 – SUBMITTAL OF BID

- 15.01 With each copy of the Bidding Documents, a Bidder is furnished one Affidavit of Compliance – Iran Economic Sanctions Act (C210) This form must be signed, notarized and included with the submitted bid package.

- 15.02 Bids shall be received no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid. Deliver two paper copies of the Bid in a sealed envelope by the date and time prescribed to CLERK'S OFFICE, Ypsilanti Township Civic Center, 7200 S. Huron River Dr., Ypsilanti, MI 48197. Please write in LARGE PRINT ON THE OUTSIDE OF THE ENVELOPE: BID FOR LOONFEATHER POINT PARK STORM SEWER REPAIR. Bids shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED."
- 15.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 16 – MODIFICATION AND WITHDRAWAL OF BID

- 16.01 A Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.
- 16.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 16.01 and submit a new Bid prior to the date and time for the opening of Bids.
- 16.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates 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.

ARTICLE 17 – OPENING OF BIDS

- 17.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 18 – BIDS TO REMAIN SUBJECT TO ACCEPTANCE

- 18.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT

- 19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible. If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, then the Owner will reject the Bid as nonresponsive; provided that Owner also reserves the right to waive all minor informalities not involving price, time, or changes in the Work.
- 19.02 If Owner awards the contract for the Work, such award shall be to the responsible Bidder submitting the lowest responsive Bid.
- 19.03 Evaluation of Bids

- A. In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.
 - B. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.
- 19.04 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.
- 19.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

ARTICLE 20 – BONDS AND INSURANCE

- 20.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner’s requirements as to maintenance, performance, and payment bonds and insurance. When the Successful Bidder delivers the Agreement (executed by Successful Bidder) to Owner, it shall be accompanied by required bonds and insurance documentation.

ARTICLE 21 – SIGNING OF AGREEMENT

- 21.01 When Owner issues a Notice of Award to the Successful Bidder, it shall be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder shall execute and deliver the required number of counterparts of the Agreement (and any bonds and insurance documentation required to be delivered by the Contract Documents) to Owner. Within ten days thereafter, Owner shall deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

AFFIDAVIT OF COMPLIANCE-IRAN ECONOMIC SANCTIONS ACT
MICHIGAN PUBLIC ACT 517 OF 2012

The undersigned, as owner or authorized officer of the below named CONTRACTOR, pursuant to the compliance certification requirement by the State of Michigan, and as referenced by OWNER in the BIDDING DOCUMENTS, hereby certifies, represents and warrants that the CONTRACTOR (including its Officers, Directors and Employees) is not an "Iran linked business" as defined by the Iran Economic Sanctions Act, Michigan Public Act 517 of 2012 (THE ACT). And, that in the event CONTRACTOR is awarded a contract as a result of the aforementioned BIDDING DOCUMENTS, the Contractor will not become an "Iran linked business" at any time during the course of performing the work or any services under the contract.

The CONTRACTOR further acknowledges that any person who is found to have submitted a false certification is responsible for a civil penalty of not more than \$250,000.00 or 2 times the amount of the contract or proposed contract for which the false certification was made, whichever is greater. The cost of the OWNER'S investigation and reasonable attorney fees may also be added in addition to the fine. Moreover, any person who submitted a false certification shall be ineligible to bid on any other of the OWNER'S projects for three (3) years from the date that it is determined that the person has submitted the false certification.

CONTRACTOR:

Name of Contractor

By: _____

Its: _____

Date: _____

STATE OF _____ }

ss.

COUNTY OF _____ }

This instrument was acknowledged before me on the _____ day of _____, _____
by _____.

, Notary Public

_____ County, State of _____

My Commission expires: _____

Acting in the County of: _____

**BID FORM
FOR CONSTRUCTION CONTRACTS**

ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

*Clerk's Office
Ypsilanti Township Civic Center
7200 S Huron River Dr
Ypsilanti, MI 48197*

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER'S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 90 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

- A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

<u>Addendum No.</u>	<u>Addendum, Date</u>
_____	_____
_____	_____
_____	_____
_____	_____

If no addenda have been issued, insert "N/A". Bidder shall submit signed copies of the Addendum Acknowledgment receipt form issued with each addendum with the complete bid form.

- B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

- D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.
- E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.
- F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
 - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;
 - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at

artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 – BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
1.	Mobilization	L.S.	L.S.		
2.	Clearing	L.S.	L.S.		
3.	Tree, Rem, 6 inch to 18 inch	Each	1		
4.	Sewer, Rem, Less than 24 inch	Lin. Ft.	182		
5.	Dr Structure, Rem	Each	1		
6.	Culv End Sect, 15 Inch	Each	1		
7.	Sewer, CI II, 15 inch, Tr Det A	Lin. Ft.	182		
8.	Dr Structure Cover, Type E	Each	1		
9.	Dr Structure, 48 inch dia	Each	1		
10.	Riprap, Plain	Sq. Yd.	10		
11.	Sodding	Sq. Yd.	900		
12.	Erosion Control and Sediment Control	L.S.	L.S.		
13.	Erosion Control, Silt Fence	Lin. Ft.	100		
14.	Erosion Control, Turbidity Curtain	Lin. Ft.	50		
Total of All Unit Price Bid Items					\$

Bidder acknowledges that (1) each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor’s overhead and profit for each separately identified item, and (2) estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 6 – TIME OF COMPLETION

6.01 Bidder agrees that the Work will be substantially complete on or before [redacted], and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before [redacted].

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

7.01 The following documents are submitted with and made a condition of this Bid:

- A. Required Bid security;
- B. Affidavit of Compliance – Iran Economic Sanctions Act;

ARTICLE 8 – DEFINED TERMS

8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

DRAFT - FOR REVIEW

ARTICLE 9 – BID SUBMITTAL

BIDDER: *[Indicate correct name of bidding entity]*

By: _____
[Signature]

[Printed name]
(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____
[Signature]

Title: _____

Submittal Date: _____

Address for giving notices:

Telephone Number: _____

Fax Number: _____

Contact Name and e-mail address: _____

Bidder's License No.: _____

(where applicable)

NOTE TO USER: Use in those states or other jurisdictions where applicable or required.

NOTICE OF AWARD

Date of Issuance:

Owner: Charter Township of Ypsilanti Owner's Contract No.:
Engineer: Spicer Group, Inc. Engineer's Project No.: 128240SG2020
Project: Loonfeather Point Park Storm Repair Contract Name:

Bidder:
Bidder's
Address:

TO BIDDER:

You are notified that Owner has accepted your Bid dated [_____] for the above Contract, and that you are the Successful Bidder and are awarded a Contract for:

_____ .
[describe Work, alternates, or sections of Work awarded]

The Contract Price of the awarded Contract is: \$ _____ *[note if subject to unit prices, or cost-plus]*

[] unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically. *[revise if multiple copies accompany the Notice of Award]*

a set of the Drawings will be delivered separately from the other Contract Documents.

You must comply with the following conditions precedent within 15 days of the date of receipt of this Notice of Award:

1. Deliver to Owner [_____] counterparts of the Agreement, fully executed by Bidder.
2. Deliver with the executed Agreement(s) the Contract security *[e.g., performance and payment bonds]* and insurance documentation as specified in the Instructions to Bidders and General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any):

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

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

Owner:

Authorized Signature

By:

Title:

Copy: Engineer

AGREEMENT

THIS AGREEMENT is by and between Charter Township of Ypsilanti (“Owner”) and _____ (“Contractor”).

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

ARTICLE 2 – THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: Loonfeather Point Park Storm Repair

ARTICLE 3 – ENGINEER

- 3.01 The Project has been designed by Spicer Group, Inc.
- 3.02 The Owner has retained Spicer Group, Inc. (“Engineer”) to act as Owner’s representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

- 4.01 *Time of the Essence*
 - A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.
- 4.02 *Contract Times: Dates*
 - A. The Work will be substantially completed on or before _____, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before _____.
- 4.03 *Liquidated Damages*
 - A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

1. Substantial Completion: Contractor shall pay Owner \$_____ for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.
2. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner \$_____ for each day that expires after such time until the Work is completed and ready for final payment.
3. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive and will not be imposed concurrently.
4. Milestones: Contractor shall pay Owner \$_____ for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for achievement of Milestone 1, until Milestone 1 is achieved.

4.04 *Special Damages*

- A. In addition to the amount provided for liquidated damages, Contractor shall reimburse Owner (1) for any fines or penalties imposed on Owner as a direct result of the Contractor's failure to attain Substantial Completion according to the Contract Times, and (2) for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Substantial Completion (as duly adjusted pursuant to the Contract), until the Work is substantially complete.
- B. After Contractor achieves Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times, Contractor shall reimburse Owner for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Work to be completed and ready for final payment (as duly adjusted pursuant to the Contract), until the Work is completed and ready for final payment.

ARTICLE 5 – CONTRACT PRICE

- 5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents the amounts that follow, subject to adjustment under the Contract:
 - A. For all Unit Price Work, an amount equal to the sum of the extended prices (established for each separately identified item of Unit Price Work by multiplying the unit price times the actual quantity of that item):

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
1.	Mobilization	L.S.	L.S.		
2.	Clearing	Sq. Yd.	160		
3.	Tree, Rem, 6 inch to 18 inch	Each	1		
4.	Culv End Sect, 15 Inch	Each	1		
5.	Sewer, CI II, 15 inch, Tr Det A	Lin. Ft.	184		
6.	Dr Structure Cover, Type E	Each	1		
7.	Dr Structure, 48 inch dia	Each	1		
8.	Riprap, Plain	Sq. Yd.	10		
9.	Sodding	Sq. Yd.	900		
10.	Erosion Control and Sediment Control	L.S.	L.S.		
11.	Erosion Control, Silt Fence	Lin. Ft.	100		
12.	Erosion Control, Turbidity Curtain	Lin. Ft.	50		
Total of All Unit Price Bid Items					\$

The extended prices for Unit Price Work set forth as of the Effective Date of the Contract are based on estimated quantities. As provided in Paragraph 13.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer.

B. For all Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit.

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 1st day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract

a. 10 percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long

as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and

- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 100 percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less 100 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work in accordance with Paragraph 15.06 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 15.06.

ARTICLE 7 – INTEREST

7.01 All amounts not paid when due shall bear interest at the rate of 1.5 percent per annum.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

8.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:

- A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.
- B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.
- E. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.
- F. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
- G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- J. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 Contents

- A. The Contract Documents consist of the following:
 - 1. This Agreement (pages 1 to █, inclusive).
 - 2. Performance bond (pages █ to █, inclusive).
 - 3. Payment bond (pages █ to █, inclusive).
 - 4. Maintenance and Guarantee Bond (pages █ to █, inclusive).
 - 5. General Conditions (pages █ to █, inclusive).
 - 6. Supplementary Conditions (pages █ to █, inclusive).
 - 7. Specifications as listed in the table of contents of the Project Manual.
 - 8. The Drawings are listed on the document title page.
 - 9. Addenda (numbers █ to █, inclusive).
 - 10. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid (pages █ to █, inclusive).
 - 11. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.
 - d. Field Orders.
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 10 – MISCELLANEOUS

10.01 Terms

- A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

10.02 *Assignment of Contract*

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 *Successors and Assigns*

- A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 *Severability*

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:
 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

10.06 *Other Provisions*

- A. Owner stipulates that if the General Conditions that are made a part of this Contract are based on EJCDC® C-700, Standard General Conditions for the Construction Contract, published by the Engineers Joint Contract Documents Committee®, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or "track changes" (redline/strikeout), or in the Supplementary Conditions.
- B. Equal Opportunity

Contractor shall not discriminate against an employee or applicant for employment with respect to hire, tenure, terms, conditions, or privileges of employment, or a matter directly or indirectly related to employment, because of race, color, religion, national origin, age, sex, height, weight, marital status, or because of a handicap that is unrelated to the person's ability to perform the duties of a particular job or position.

DRAFT - FOR REVIEW

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on _____ (which is the Effective Date of the Contract).

OWNER:

CONTRACTOR:

By: _____

By: _____

Title: _____

Title: _____

Attest: _____

Attest: _____

Title: _____

Title: _____

Address for giving notices:

Address for giving notices:

NOTICE TO PROCEED

Owner:	Charter Township of Ypsilanti	Owner's Contract No.:	
Contractor:		Contractor's Project No.:	
Engineer:	Spicer Group, Inc.	Engineer's Project No.:	128240SG2020
Project:	Loonfeather Point Park Storm Repair	Contract Name:	
		Effective Date of Contract:	

TO CONTRACTOR:

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on _____, **2020**. *[see Paragraph 4.01 of the General Conditions]*

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work shall be done at the Site prior to such date. In accordance with the Agreement, the date of Substantial Completion is _____, **2020**, and the date of readiness for final payment is _____, **2020**.

Before starting any Work at the Site, Contractor must comply with the following:
[Note any access limitations, security procedures, or other restrictions]

Owner:

Authorized Signature

By:

Title:

Date Issued:

Copy: Engineer

PERFORMANCE BOND

CONTRACTOR (name and address):

SURETY (name and address of principal place of business):

OWNER (name and address):

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description (name and location):

BOND

Bond Number:

Date (not earlier than the Effective Date of the Agreement of the Construction Contract):

Amount:

Modifications to this Bond Form: None See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

(seal)
Contractor's Name and Corporate Seal

(seal)
Surety's Name and Corporate Seal

By: _____
Signature

By: _____
Signature (attach power of attorney)

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after:

3.1 The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

3.2 The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

3.3 The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

7.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

7.2 additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

7.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

11. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed

incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

14. Definitions

14.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

14.2 Construction Contract: The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

14.3 Contractor Default: Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

14.4 Owner Default: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

14.5 Contract Documents: All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

16. Modifications to this Bond are as follows:

PAYMENT BOND

CONTRACTOR *(name and address):*

SURETY *(name and address of principal place of business):*

OWNER *(name and address):*

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location):*

BOND

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract):*

Amount:

Modifications to this Bond Form: None See Paragraph 18

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

(seal)
Contractor's Name and Corporate Seal

(seal)
Surety's Name and Corporate Seal

By: _____

Signature

By: _____

Signature *(attach power of attorney)*

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond shall arise after the following:
 - 5.1 Claimants who do not have a direct contract with the Contractor,
 - 5.1.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
 - 5.1.2 have sent a Claim to the Surety (at the address described in Paragraph 13).
 - 5.2 Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
 - 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
 - 7.2 Pay or arrange for payment of any undisputed amounts.
 - 7.3 The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.
8. The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond,

and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.

11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

12. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

16. Definitions

16.1 **Claim:** A written statement by the Claimant including at a minimum:

1. The name of the Claimant;
2. The name of the person for whom the labor was done, or materials or equipment furnished;
3. A copy of the agreement or purchase order pursuant to which labor, materials,

or equipment was furnished for use in the performance of the Construction Contract;

4. A brief description of the labor, materials, or equipment furnished;
5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
7. The total amount of previous payments received by the Claimant; and
8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

16.2 **Claimant:** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

16.3 **Construction Contract:** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

16.4 **Owner Default:** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

16.5 **Contract Documents:** All the documents that comprise the agreement between the Owner and Contractor.

17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in

this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

18. Modifications to this Bond are as follows:

DRAFT - FOR REVIEW

MAINTENANCE AND GUARANTEE BOND

KNOW ALL PERSONS BY THESE PRESENTS, that we, the undersigned, _____

_____ as Principal, and _____

as Surety, are held and firmly bound onto Charter Township of Ypsilanti, OWNER,

in the sum of _____

_____ Dollars (\$ _____) to be paid to the Owner for which payment

will and truly be made jointly and severally bind ourselves, our heirs, our executors, administrators, and assigns, firmly by these presents.

Sealed with our signature and seals and dated this _____ day of _____, 20__.

WHEREAS, the above named Principal has entered into a certain written Contract with Charter Township of Ypsilanti dated _____, 20__, wherein the Principal agreed as follows:

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH that by and under said Contract, the above-named Principal has agreed with the OWNER, for a period of one (2) years from the date of payment of the final estimate, to keep in good order and repair and defect in all work done under said Contract, either by the Principal or his subcontractors, or his suppliers, that may develop during said period due to improper materials, defective equipment, workmanship or arrangements; any other work affected in making good such imperfections, shall also be made good, all without expense to the OWNER, excepting only such part or parts of said Work as may have been disturbed without the consent or approval of the Principal after final acceptance of the Work, and that whenever directed to do so by the OWNER, by notice served in writing, either personally or by mail, on the Principal, legal representative, successor, or on the Surety, he/she will at once make such repairs as directed by the OWNER; and in case of failure to do so within one (1) week from the date of service of such notice, or within a reasonable time as shall be fixed in said notice, then the OWNER shall have the right to purchase such materials and employ such labor and equipment as may be necessary for the purpose and to undertake to do and make such repairs, and charge the expense thereof to and receive same from said Principal or Surety. If any repair is necessary to be made at once to protect life and property, then and in that case, the OWNER may take immediate steps to repair or barricade such defects without notice to the CONTRACTOR. In such accounting the OWNER shall not be held to obtain the lowest figure for doing of the Work or nay part thereof, but all sums actually paid therefore shall be charged to the Principal or Surety. In this connection, the judgement of the OWNER is final and conclusive. If the said Principal, for a period of one (2) years from the date of the final estimate of payment, shall keep such Work so constructed under the Contact in good order and repair, excepting only such part or parts of such Work as may have been disturbed without the consent or approval of said Principal after final acceptance of the same, and shall, whenever notice is given as herein specified, at once proceed to make repair as in said notice directed or shall reimburse the OWNER for any expense incurred by making such repairs should the Principal or Surety fail to do as hereinbefore specified, and shall fully indemnify, defend and hold harmless said OWNER from all law suits and actions for damages of every name and description brought or claimed against it for or on account of any injury to person(s) or property received or sustained by any party or parties, by or from any of the acts or omissions or through the prosecution of the Work included in said Contract, and from any and all claims arising under the Workman's Compensation Act, so-called, of the State of Michigan, then the above obligation shall be void, otherwise to remain in full force and effect.

IN WITNESS WHEREOF, the parties have caused this instrument to be executed by their respective authorized officers this _____ day of _____, 20__.

Signed, Sealed and Delivered
in the presence of:

Signature

Signature

Name

Name

Principal

Signature

Signature

Name

Name

Surety

DRAFT - FOR REVIEW

CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner: Charter Township of Ypsilanti
Contractor:
Engineer: Spicer Group, Inc.
Project: Loonfeather Point Park Storm Repair

Owner's Contract No.:
Contractor's Project No.:
Engineer's Project No.: 127240SG2020
Contract Name:

This [preliminary] [final] Certificate of Substantial Completion applies to:

- All Work The following specified portions of the Work:

Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Work or portion thereof designated above is hereby established, subject to the provisions of the Contract pertaining to Substantial Completion. The date of Substantial Completion in the final Certificate of Substantial Completion marks the commencement of the contractual correction period and applicable warranties required by the Contract.

A punch list of items to be completed or corrected is attached to this Certificate. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work shall be as provided in the Contract, except as amended as follows: *[Note: Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.]*

Amendments to Owner's responsibilities: None
 As follows

Amendments to Contractor's responsibilities: None
 As follows:

The following documents are attached to and made a part of this Certificate: *[punch list; others]*

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents, nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract.

EXECUTED BY ENGINEER:	RECEIVED:	RECEIVED:
By: _____ (Authorized signature)	By: _____ Owner (Authorized Signature)	By: _____ Contractor (Authorized Signature)
Title: _____	Title: _____	Title: _____
Date: _____	Date: _____	Date: _____

**STANDARD GENERAL CONDITIONS OF THE
CONSTRUCTION CONTRACT**

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. 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, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 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. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 7. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 8. *Change Order*—A document 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, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
 10. *Claim*—(a) A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein: seeking an adjustment of Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract; or (b) a demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal; or seeking resolution of a contractual issue that Engineer has declined to address. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. (“CERCLA”); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5501 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. (“RCRA”); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
12. *Contract*—The entire and integrated written contract between the Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Engineer*—The individual or entity named as such in the Agreement.
21. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
22. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.
23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
25. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.

26. *Notice of Award*—The written notice by Owner to a Bidder of Owner’s acceptance of the Bid.
27. *Notice to Proceed*—A written notice 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.
28. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
29. *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.
30. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.
32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or “RPR” includes any assistants or field staff of Resident Project Representative.
33. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals and the performance of related construction activities.
35. *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.
36. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
37. *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, and such other lands furnished by Owner which are designated for the use of Contractor.
38. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
39. *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.
40. *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.

41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.
42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
43. *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 a Subcontractor.
44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.
45. *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 but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
46. *Unit Price Work*—Work to be paid for on the basis of unit prices.
47. *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; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.
48. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

- A. The words and terms discussed in the following paragraphs are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated 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 information in the Contract Documents and with the design concept of the 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 Article 10 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 15.03 or 15.04).
- 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. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.
- F. Unless stated otherwise in the Contract Documents, words or phrases that 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. *Bonds:* 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 Contractor’s Insurance:* When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere

in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.

- C. *Evidence of Owner's Insurance:* After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Contract (or as otherwise specifically required by the Contract Documents), 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;
 - 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.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

- 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 2.03.A, procedures for handling Shop Drawings, Samples, and other submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *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 2.03.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 the component parts of the Work.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.
- B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, 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.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

3.02 *Reference Standards*

- A. Standards Specifications, Codes, Laws and Regulations
 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, 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, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract 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, reference standard, 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 part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, 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 part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*

1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.
2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then 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 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.
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 had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
 - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); 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 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.
- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers 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 its consultants, including electronic media editions, or reuse any 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 adaptation by Engineer; or
 - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions 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.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *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 Contract 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 Contract. 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 Contract, whichever date is earlier.

4.02 *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 such date.

4.03 *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.

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 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 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.
- B. 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, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, 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 Times and Contract Price. 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.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. 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. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
 - 1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 - 2. abnormal weather conditions;
 - 3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
 - 4. acts of war or terrorism.

- D. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5.
- E. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.
- F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.
- G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *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.
- 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 permanent improvements are to be made 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.

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas:*

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.12, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers,

directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claim, and against all 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 directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent 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 and adjacent areas 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 of 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 structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
 - 1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;
 - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); and
 - 3. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, 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.

5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site 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 5.03 is materially inaccurate; or
 2. is of such a nature as to require a change in the Drawings or Specifications; 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 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Possible Price and Times Adjustments:*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, 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 fall within any one or more of the categories described in Paragraph 5.04.A;
 - 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 Paragraph 13.03; and,
 - c. 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.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a 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 otherwise; or
 - b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph 5.04.A.
3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent 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 do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; 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 information and data regarding existing Underground Facilities at the Site;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;
 - c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 - d. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, then 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 7.15), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.
- C. *Engineer's Review:* Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents,

or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Possible Price and Times Adjustments:*
1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
 - 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 Paragraph 13.03;
 - c. 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; and
 - d. Contractor gave the notice required in Paragraph 5.05.B.
 2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

5.06 *Hazardous Environmental Conditions at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
 2. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the

accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors 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 removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) 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. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.
- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. 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, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.
- H. 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, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, 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 (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.H shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, 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 failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6 – BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, 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. 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 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.
- B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority

shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

- C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.
- D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then 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 bond and surety requirements above.
- E. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.
- F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this Article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is maintaining the policies, coverages, and endorsements required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- E. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.

- F. If either party does not purchase or maintain all of the insurance required of such party by the Contract, 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.
- G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.
- H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price shall be adjusted accordingly.
- I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.
- J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

6.03 *Contractor's Insurance*

- A. *Workers' Compensation:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.
 - 2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).
 - 3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).
 - 4. Foreign voluntary worker compensation (if applicable).
- B. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:
 - 1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
 - 2. claims for damages insured by reasonably available personal injury liability coverage.
 - 3. 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.
- C. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:
 - 1. Products and completed operations coverage:
 - a. Such insurance shall be maintained for three years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.

2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
 3. Broad form property damage coverage.
 4. Severability of interest.
 5. Underground, explosion, and collapse coverage.
 6. Personal injury coverage.
 7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.
 8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- D. *Automobile liability*: Contractor shall purchase and maintain automobile liability insurance against 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. The automobile liability policy shall be written on an occurrence basis.
- E. *Umbrella or excess liability*: Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.
- F. *Contractor's pollution liability insurance*: Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.
- G. *Additional insureds*: The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, 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 (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.
- H. *Contractor's professional liability insurance*: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.
- I. *General provisions*: The policies of insurance required by this Paragraph 6.03 shall:
1. include at least the specific coverages provided in this Article.

2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.
 3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.
 4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.
 5. be appropriate for the Work being performed and provide protection from claims that 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.
- J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

6.04 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, 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.
- B. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

6.05 *Property Insurance*

- A. *Builder's Risk:* Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable 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 Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."
 2. be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required

by the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.

3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
 4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).
 5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
 6. extend to cover damage or loss to insured property while in transit.
 7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
 8. allow for the waiver of the insurer's subrogation rights, as set forth below.
 9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
 10. not include a co-insurance clause.
 11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
 12. include performance/hot testing and start-up.
 13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.
- B. *Notice of Cancellation or Change:* All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.
- C. *Deductibles:* The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.
- D. *Partial Occupancy or Use by Owner:* If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or

occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.

- E. *Additional Insurance*: If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.
- F. *Insurance of Other Property*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

6.06 *Waiver of Rights*

- A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, 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 insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. Owner and Contractor waive all rights against each other and the respective officers, directors, members, 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 Engineer, its consultants, all Subcontractors, all individuals or entities identified in the Supplementary Conditions as insureds, and the officers, directors, members, 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 or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, 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 occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.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, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.
- D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary

Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, 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 builder's risk insurance and any other property insurance applicable to the Work.

6.07 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.
- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.05 shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.01 *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.
- 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.

7.02 *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, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.03 *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, whether or not such items are specifically called for in the Contract Documents.

- B. All materials and equipment incorporated into the Work 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.

7.04 “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 Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item 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 is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below.

1. If Engineer in its sole discretion determines that 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, Engineer shall deem it an “or equal” item. For the purposes of this paragraph, 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
- 4) it is not objectionable to Owner.

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.

B. *Contractor’s Expense:* Contractor shall provide all data in support of any proposed “or equal” item at Contractor’s expense.

C. *Engineer’s Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each “or-equal” request. Engineer may require Contractor to furnish additional data about the proposed “or-equal” item. Engineer will be the sole judge of acceptability. No “or-equal” item will be ordered, furnished, installed, or utilized until Engineer’s review is complete and Engineer determines that the proposed item is an “or-equal”, which will be

evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

- D. *Effect of Engineer's Determination:* Neither approval nor denial of an "or-equal" request shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.
- E. *Treatment as a Substitution Request:* If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer considered the proposed item as a substitute pursuant to Paragraph 7.05.

7.05 *Substitutes*

- A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.
 - 1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.
 - 2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
 - 3. 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:
 - a. shall certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design,
 - 2) be similar in substance to that specified, and
 - 3) be suited to the same use as that specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,
 - 2) whether 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
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from that specified, and
 - 2) available engineering, sales, maintenance, repair, and replacement services.

- d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable 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.
- E. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination:* If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.
- B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.
- E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the

identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.

- F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. 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 the right of Owner to the completion of the Work in accordance with the Contract Documents.
- H. On a monthly basis Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. 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.
- J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.
- K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.
- L. 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.
- M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.
- N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.
- O. 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 create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.07 *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, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors 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 specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, 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.

7.08 *Permits*

- A. Unless otherwise provided in the Contract Documents, 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 the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work

7.09 *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.

7.10 *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 or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, 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 such

Work or other action. It shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

- C. Owner or Contractor may give notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.11 *Record Documents*

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

7.12 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. 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, other work in progress, 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 Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

- E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.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 at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer 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).
- F. Contractor's duties and responsibilities for safety and protection 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 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).
- G. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.13 *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.

7.14 *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.

7.15 *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.

7.16 *Shop Drawings, Samples, and Other Submittals*

A. *Shop Drawing and Sample Submittal Requirements:*

1. Before submitting a Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

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 of that submittal, and that Contractor approves the 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 set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.
- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.
1. *Shop Drawings:*
 - a. Contractor shall submit the number of copies required in the Specifications.
 - 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 7.16.D.
 2. *Samples:*
 - a. Contractor shall submit the number of Samples required in the Specifications.
 - b. Contractor shall 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 7.16.D.
 3. 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. *Other Submittals:* Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.
- 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 or to safety precautions or programs incident thereto.
 3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
 4. Engineer's review and approval of a Shop Drawing or Sample 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 7.16.A.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 will document any such approved variation from the requirements of the Contract Documents in a Field Order.

5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.
 6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
 7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.
 8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.D.4.
- 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.
 2. Contractor shall furnish required submittals with sufficient information and accuracy to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.
 3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

7.17 *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 officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on 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;
 6. the issuance of a notice of acceptability by Engineer;
 7. any inspection, test, or approval by others; or
 8. any correction of defective Work by Owner.
- D. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract shall govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, 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 officers, directors, members, partners, employees, agents, consultants, or subcontractors 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 7.18.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 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, 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.

7.19 *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 Laws and Regulations.

- 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, 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, 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 7.16.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

ARTICLE 8 – OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any utility work at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. 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 such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.
- D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, 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.

8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
 - 1. the identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
 - 2. an itemization of the specific matters to be covered by such authority and responsibility; and
 - 3. the extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

- A. If, in the course of performing other work at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment shall take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract. When applicable, any such equitable adjustment in Contract Price shall be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. 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.
- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due to Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this paragraph.
- C. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due to Contractor.

- D. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all 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 damage, delay, disruption, or interference.

ARTICLE 9 – OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

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

9.02 *Replacement of Engineer*

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents shall be that of the former Engineer.

9.03 *Furnish Data*

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

9.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *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.

9.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *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.

10.02 *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 10.08. 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.

10.03 *Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress

and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 10.08. 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.

10.04 *Rejecting Defective Work*

- A. Engineer has the authority to reject Work in accordance with Article 14.

10.05 *Shop Drawings, Change Orders and Payments*

- A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.
- B. 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, are set forth in Paragraph 7.19.
- C. Engineer's authority as to Change Orders is set forth in Article 11.
- D. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.06 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

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

- A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.08 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, 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 15.06.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 10.08 shall also apply to the Resident Project Representative, if any.

10.09 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs (if any) of which Engineer has been informed.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

11.01 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.

1. *Change Orders:*

- a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.
- b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.

- 2. *Work Change Directives:* A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.

- 3. *Field Orders:* Engineer may authorize minor changes in the Work if the changes 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. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.02 *Owner-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. Such changes shall

be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.03 *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, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.

11.04 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.
- B. 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, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03); or
 - 2. where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.C.2); or
 - 3. where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).
- C. *Contractor's Fee*: When applicable, 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 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 13.01.B.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 Paragraphs 11.01.C.2.a and 11.01.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the

Subcontractor that actually performs the Work, a fee of five percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted work the maximum total fee to be paid by Owner shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;

- d. no fee shall be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
- 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 11.04.C.2.a through 11.04.C.2.e, inclusive.

11.05 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.
- B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

11.06 *Change Proposals*

- A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.
 - 1. *Procedures:* Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal. The supporting data shall be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.
 - 2. *Engineer's Action:* Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

3. *Binding Decision:* Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- B. *Resolution of Certain Change Proposals:* If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

11.07 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
 1. 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;
 2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and
 4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.
- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.08 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety 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), 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.

ARTICLE 12 – CLAIMS

12.01 *Claims*

- A. *Claims Process:* The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:
 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and
 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters.

- B. *Submittal of Claim:* The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
- C. *Review and Resolution:* The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation:*
1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.
 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.
 3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval:* If the party receiving a Claim approves the Claim in part and denies it in part, such action shall be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim:* If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim shall be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results:* If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

- A. *Purposes for Determination of Cost of the Work:* The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:

1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
 2. To determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included:* Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:
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 on the Work. 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, and 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 13.01.
 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, as 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 6.05), 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 communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
 - i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.
- C. *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 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here 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 Paragraph 13.01.B.

- D. *Contractor's Fee:* When the Work as a whole 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, Change Proposal, Claim, set-off, or other 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 11.04.C.
- E. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, 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.

13.02 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:* Contractor agrees that:
 - 1. 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
 - 2. 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:* 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.

13.03 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. Payments to Contractor for Unit Price Work will be based on actual quantities.
- 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. 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 the following paragraph.
- E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price 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;
2. there is no corresponding adjustment with respect to any other item of Work; and
3. Contractor believes that it 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 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

14.01 Access to Work

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

14.02 Tests, Inspections, and Approvals

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 14.05.
- 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, obtaining, and paying for all inspections and tests required:
 1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 3. by manufacturers of equipment furnished under the Contract Documents;
 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests shall be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. 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, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work shall be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

- A. Engineer has the authority to require special inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then 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, and provide all necessary labor, material, and equipment.
 - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages 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 pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 - 2. 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, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *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, then 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.

14.07 *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, 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, then 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 14.07, 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, 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 incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. 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 14.07.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 Progress Payments

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 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 during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *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, a warehouse bond, 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.
- C. *Review of Applications:*
1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, 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 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, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and 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; or
 - b. 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 money 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 15.01.C.2.
 6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
 - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due:*

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

E. *Reductions in Payment by Owner:*

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. claims have been made against Owner on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;
 - b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. the Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. the Contract Price has been reduced by Change Orders;
 - i. an event that would constitute a default by Contractor and therefore justify a termination for cause has occurred;
 - j. liquidated damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. 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;
 - l. there are other items entitling Owner to a set off against the amount recommended.
2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, 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, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.
3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 15.01.C.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than seven days after the time of payment by Owner.

15.03 *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 and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
- 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 preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.
- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- 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. At any time Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through E for that part of the Work.
2. At any time Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work 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 15.03 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 6.05 regarding builder's risk or other property insurance.

15.05 *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, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *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, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.
 - d. a list of all disputes that Contractor believes are unsettled; and

- e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, 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, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.
- 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 have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. 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 15.07. 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. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.
- D. *Payment Becomes Due:* Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.07 *Waiver of Claims*

- A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.
- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

15.08 *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 Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 1. correct the defective repairs to the Site or such other adjacent areas;
 2. correct such defective Work;
 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 to 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. 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 repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).
- 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, 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 are in addition to all other obligations and warranties. The provisions of this paragraph shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

16.01 *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 written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and 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);
 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) ten days written notice that Owner is considering a declaration that Contractor is in default and termination of the contract, Owner may proceed to:
1. declare Contractor to be in default, and give Contractor (and any surety) notice that the Contract is terminated; and
 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, 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 complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within seven days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.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 the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds 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.
- F. 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, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *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; and
 - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid on account of loss of anticipated overhead, profits, or revenue, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) 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 16.03.
- 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 are not intended to preclude Contractor from submitting a Change Proposal 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 17 – FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this Article:
 - 1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full; and
 - 2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents, and arising after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this Article, Owner or Contractor may:
 - 1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions; or

2. agree with the other party to submit the dispute to another dispute resolution process; or
3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18 – MISCELLANEOUS

18.01 *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, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or
 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

18.02 *Computation of Times*

- A. When any period of time is referred to in the Contract 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.

18.03 *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. 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.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

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

18.07 *Controlling Law*

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

18.08 *Headings*

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

DRAFT - FOR REVIEW

Supplementary Conditions

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC® C-700 (2013 Edition). All provisions that are not so amended or supplemented remain in full force and effect.

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

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

SC-5.03 *Subsurface and Physical Conditions*

SC-5.03 Delete Paragraphs 5.03.A and 5.03.B in their entirety and insert the following:

- A. No reports of exploration or test of subsurface conditions at or adjacent to the Site, or drawings of physical conditions relating to existing surface or subsurface structures at the Site, are known to the Owner.

SC-5.06 Hazardous Environmental Conditions

SC 5.06 Delete Paragraphs 5.06.A and 5.06.B in their entirety and insert the following:

- A. No reports or drawings related to Hazardous Environmental Conditions at the Site are known to Owner.
- B. Not Used.

ARTICLE 6 – BONDS AND INSURANCE

SC-6.01 *Performance, Payment, and Other Bonds*

SC 6.01 Add the following new paragraph immediately after Paragraph 6.01.A:

- 1. Contractor shall also furnish a Maintenance and Guarantee Bond in an amount equal to the Contract Price. This bond shall remain in effect until two years after the date when final payment becomes due. A draft of the Maintenance and Guarantee Bond is included in the Bidding Documents.

SC-6.03 *Contractor's Liability Insurance*

SC 6.03 Add the following new paragraph immediately after Paragraph 6.03.J:

- K. The limits of liability for the insurance required by Paragraph 6.03 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation, and related coverages under Paragraphs 6.03.A.1 and A.2 of the General Conditions:

\$1,000,000.00 limit each accident

2. Contractor's Commercial General Liability under Paragraphs 6.03.B and 6.03.C of the General Conditions:

Combined single limit of \$1,000,000.00 each occurrence for bodily injury 7 property damage. Must include 60 day written notice for change of coverage, cancellation, or non-renewal of coverage. Must name "The Charter Township of Ypsilanti and its past, present, and future elected officials shall be named as "additional named insured" on the general liability policy with respect to the services provided under this contract" – Occurrence basis. Additionally, Spicer Group, Inc. shall be named as Additional Insured, held harmless and indemnified.

3. Automobile Liability under Paragraph 6.03.D of the General Conditions:

Covers owned, hired, and non-owned vehicles with personal protection insurance and property protection. Includes residual liability insurance with a combined single limit of \$1,000,000.00 each accident for bodily injury and property damage.

4. Owner's Protective Liability

Combined single limit of \$1,000,000.00 each occurrence for bodily injury & property damage.

5. Builder's Risk

Option. May be used to cover everything.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

SC-7.02 Labor; Working Hours

SC-7.02.B. Add the following new subparagraphs immediately after Paragraph 7.02.B:

- 1. Regular working hours will be 7 A.M to 7 P.M.**
- 2. Owner's legal holidays shall be defined as U.S. Federal Holidays.**

SC-7.02.B. Amend the first and second sentences of Paragraph 7.02.B to state "...all Work at the Site shall be performed during regular working hours, Monday through Saturday. Contractor will not perform Work on a Sunday or any legal holiday."

SC-7.08 Permits

SC 7.08 Add the following new subparagraphs immediately after Paragraph 7.08.A:

- B. A Soil Erosion and Sedimentation Control (SESC) Permit is not required since the Owner is an Authorized Public Agency (APA). However, the Contractor will need to construct the project in accordance with SESC measure as described in the bidding plans and specifications.**

ARTICLE 10 – ENGINEER’S STATUS DURING CONSTRUCTION

SC-10.03 *Project Representative*

SC-10.03 Add the following new paragraphs immediately after Paragraph 10.03.A:

- B.** The Resident Project Representative (RPR) will be Engineer's representative at the Site, will act as directed by and under the supervision of Engineer, and will confer with Engineer regarding RPR's actions.
1. **General:** RPR's dealings in matters pertaining to the Work in general shall be with Engineer and Contractor. RPR's dealings with Subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall generally communicate with Owner only with the knowledge of and under the direction of Engineer.
 2. **Schedules:** Review the progress schedule, schedule of Shop Drawing and Sample submittals, and Schedule of Values prepared by Contractor and consult with Engineer concerning acceptability.
 3. **Conferences and Meetings:** Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings, and prepare and circulate copies of minutes thereof.
 4. **Liaison:**
 - a. Serve as Engineer’s liaison with Contractor. Working principally through Contractor’s authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.
 - b. Assist Engineer in serving as Owner’s liaison with Contractor when Contractor’s operations affect Owner’s on-Site operations.
 - c. Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.
 5. **Interpretation of Contract Documents:** Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.
 6. **Shop Drawings and Samples:**
 - a. Record date of receipt of Samples and Contractor-approved Shop Drawings.
 - b. Receive Samples which are furnished at the Site by Contractor, and notify Engineer of availability of Samples for examination.
 - c. Advise Engineer and Contractor of the commencement of any portion of the Work requiring a Shop Drawing or Sample submittal for which RPR believes that the submittal has not been approved by Engineer.
 7. **Modifications:** Consider and evaluate Contractor’s suggestions for modifications in Drawings or Specifications and report such suggestions, together with RPR’s recommendations, if any, to Engineer. Transmit to Contractor in writing decisions as issued by Engineer.

- 8. Review of Work and Rejection of Defective Work:**
- a. Conduct on-Site observations of Contractor's work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.
 - b. Report to Engineer whenever RPR believes that any part of Contractor's work in progress is defective, will not produce a completed Project that conforms generally to the Contract Documents, or will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Engineer of that part of work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.
- 9. Inspections, Tests, and System Start-ups:**
- a. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate records thereof.
 - b. Observe, record, and report to Engineer appropriate details relative to the test procedures and systems start-ups.
- 10. Records:**
- a. Prepare a daily report or keep a diary or log book, recording Contractor's hours on the Site, Subcontractors present at the Site, weather conditions, data relative to questions of Change Orders, Field Orders, Work Change Directives, or changed conditions, Site visitors, deliveries of equipment or materials, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.
 - b. Record names, addresses, fax numbers, e-mail addresses, web site locations, and telephone numbers of all Contractors, Subcontractors, and major Suppliers of materials and equipment.
 - c. Maintain records for use in preparing Project documentation.
- 11. Reports:**
- a. Furnish to Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the Progress Schedule and schedule of Shop Drawing and Sample submittals.
 - b. Draft and recommend to Engineer proposed Change Orders, Work Change Directives, and Field Orders. Obtain backup material from Contractor.
 - c. Immediately notify Engineer of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, force majeure or delay events, damage to property by fire or other causes, or the discovery of any Constituent of Concern or Hazardous Environmental Condition.

12. **Payment Requests:** Review applications for payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the Schedule of Values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.
13. **Certificates, Operation and Maintenance Manuals:** During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Contract Documents to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to Engineer for review and forwarding to Owner prior to payment for that part of the Work.
14. **Completion:**
 - a. Participate in Engineer's visits to the Site to determine Substantial Completion, assist in the determination of Substantial Completion and the preparation of a punch list of items to be completed or corrected.
 - b. Participate in Engineer's final visit to the Site to determine completion of the Work, in the company of Owner and Contractor, and prepare a final punch list of items to be completed and deficiencies to be remedied.
 - c. Observe whether all items on the final list have been completed or corrected and make recommendations to Engineer concerning acceptance and issuance of the notice of acceptability of the work.

C. The RPR shall not:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).
2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.
3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.
4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of Contractor's work.
5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
7. Accept Shop Drawing or Sample submittals from anyone other than Contractor.
8. Authorize Owner to occupy the Project in whole or in part.

ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

SC-13.01 Cost of the Work

SC-13.01 Add the following to the end of Paragraph 13.01.B.1:

Contractor is required to observe and abide by The Charter Township of Ypsilanti's Prevailing Wage and Living Wage requirements. The relevant Township ordinances, as well as the relevant Prevailing Wage Decision are included in the Bidding Documents.

DRAFT - FOR REVIEW

Work Change Directive No.

Date of Issuance: _____ Effective Date: _____
 Owner: Charter Township of Ypsilanti Owner's Contract No.: _____
 Contractor: _____ Contractor's Project No.: _____
 Engineer: Spicer Group, Inc. Engineer's Project No.: 128240SG2020
 Project: Loonfeather Point Park Storm Repair Contract Name: _____

Contractor is directed to proceed promptly with the following change(s):
 Description:

Attachments: *[List documents supporting change]*

Purpose for Work Change Directive:

Directive to proceed promptly with the Work described herein, prior to agreeing to changes on Contract Price and Contract Time, is issued due to: *[check one or both of the following]*

- Non-agreement on pricing of proposed change.
- Necessity to proceed for schedule or other Project reasons.

Estimated Change in Contract Price and Contract Times (non-binding, preliminary):

Contract Price \$ _____ [increase] [decrease].
 Contract Time _____ days [increase] [decrease].

Basis of estimated change in Contract Price:

- Lump Sum Unit Price
- Cost of the Work Other

RECOMMENDED:	AUTHORIZED BY:	RECEIVED:
By: _____ Engineer (Authorized Signature)	By: _____ Owner (Authorized Signature)	By: _____ Contractor (Authorized Signature)
Title: _____	Title: _____	Title: _____
Date: _____	Date: _____	Date: _____

Approved by Funding Agency (if applicable)

By: _____ Date: _____
 Title: _____

Date of Issuance:
 Owner: Charter Township of Ypsilanti
 Contractor:
 Engineer: Spicer Group, Inc.
 Project: Loonfeather Point Park Storm Repair

Effective Date:
 Owner's Contract No.:
 Contractor's Project No.:
 Engineer's Project No.: 128240SG2020
 Contract Name:

The Contract is modified as follows upon execution of this Change Order:

Description:

Attachments: *[List documents supporting change]*

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES <i>[note changes in Milestones if applicable]</i>
Original Contract Price: \$ _____	Original Contract Times: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
[Increase] [Decrease] from previously approved Change Orders No. ___ to No. ___: \$ _____	[Increase] [Decrease] from previously approved Change Orders No. ___ to No. ___: Substantial Completion: _____ Ready for Final Payment: _____ days
Contract Price prior to this Change Order: \$ _____	Contract Times prior to this Change Order: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
[Increase] [Decrease] of this Change Order: \$ _____	[Increase] [Decrease] of this Change Order: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
Contract Price incorporating this Change Order: \$ _____	Contract Times with all approved Change Orders: Substantial Completion: _____ Ready for Final Payment: _____ days or dates

<p>RECOMMENDED:</p> <p>By: _____ Title: <u>Engineer (if required)</u> Date: _____</p>	<p>ACCEPTED:</p> <p>By: _____ Title: <u>Owner (Authorized Signature)</u> Date: _____</p>	<p>ACCEPTED:</p> <p>By: _____ Title: <u>Contractor (Authorized Signature)</u> Date: _____</p>
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Approved by Funding Agency (if applicable)

By: _____ Date: _____
 Title: _____

SECTION 01 10 00 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Contract description.
2. Contractor's use of Site and premises.
3. Permits.
4. Specification conventions.

1.2 CONTRACT DESCRIPTION

- A. Work of the Project includes replacement of a failed storm sewer pipe in Loonfeather Point Park which outlets to Ford Lake.
- B. Perform Work of Contract under Unit Price Contract with Owner according to Conditions of Contract.

1.3 CONTRACTOR'S USE OF SITE AND PREMISES

- A. Access to Site: The park will be closed to public during construction.
- B. Time Restrictions for Performing Work: As described in the Agreement.

1.4 PERMITS

A. Furnish all necessary permits for construction of Work including the following:

1. USACE/EGLE Joint Permit
2. EGLE Part 91 Soil Erosion and Sedimentation Control (Ypsilanti Township MEA)
3. EGLE Part 301 Inland Lakes and Streams Minor Project

1.5 SPECIFICATION CONVENTIONS

- A. These Specifications are written in imperative mood and streamlined form. This imperative language is directed to Contractor unless specifically noted otherwise. The words "shall be" are included by inference where a colon (:) is used within sentences or phrases.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION

DRAFT - FOR REVIEW

SECTION 01 20 00 - PRICE AND PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Application for Payment.
- B. Change procedures.
- C. Defect assessment.
- D. Mobilization
- E. Unit prices.

1.2 APPLICATION FOR PAYMENT

- A. Submit electronic file of each Application for Payment on EJCDC C-620 - Contractor's Application for Payment.
- B. Content and Format: Use Schedule of Values for listing items in Application for Payment.
- C. Submit updated construction schedule with each Application for Payment.
- D. Payment Period: Submit at intervals stipulated in the Agreement.
- E. Submit submittals with transmittal letter as specified in Section 01 33 00 - Submittal Procedures.

1.3 CHANGE PROCEDURES

- A. Submittals: Submit name of individual who is authorized to receive change documents and is responsible for informing others in Contractor's employ or Subcontractors of changes to the Work.
- B. Carefully study and compare Contract Documents before proceeding with fabrication and installation of Work. Promptly advise Architect/Engineer of any error, inconsistency, omission, or apparent discrepancy.
- C. Requests for Interpretation (RFI) and Clarifications: Allot time in construction scheduling for liaison with Architect/Engineer; establish procedures for handling queries and clarifications.
 - 1. Use CSI Form 13.2A - Request for Interpretation for requesting interpretations.
 - 2. Architect/Engineer may respond with a direct answer on the Request for Interpretation form.

- D. Architect/Engineer will advise of minor changes in the Work not involving adjustment to Contract Sum/Price or Contract Time by issuing supplemental instructions on EJCDC C-942.
- E. Architect/Engineer may issue CSI Form 13/6A including a detailed description of proposed change with supplementary or revised Drawings and Specifications, a change in Contract Time for executing the change with stipulation of overtime work required and with the period of time during which the requested price will be considered valid. Contractor will prepare and submit estimate within 7 days.
- F. Document requested substitutions according to Section 01 25 00 - Substitution Procedures.
- G. Unit Price Change Order: For Contract unit prices and quantities, the Change Order will be executed on a fixed unit price basis. For unit costs or quantities of units of that which are not predetermined, execute Work under Work Directive Change. Changes in Contract Sum/Price or Contract Time will be computed as specified for Time and Material Change Order.
- H. Work Directive Change: Architect/Engineer may issue directive, on EJCDC C-940 - Work Change Directive signed by Owner, instructing Contractor to proceed with change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in the Work and designate method of determining any change in Contract Sum/Price or Contract Time. Promptly execute change.
- I. Time and Material Change Order: Submit itemized account and supporting data after completion of change, within time limits indicated in Conditions of the Contract. Architect/Engineer will determine change allowable in Contract Sum/Price and Contract Time as provided in Contract Documents.
- J. Maintain detailed records of Work done on time and material basis. Provide full information required for evaluation of proposed changes and to substantiate costs for changes in the Work.
- K. Document each quotation for change in Project Cost or Time with sufficient data to allow evaluation of quotation.
- L. Change Order Forms: EJCDC C-941 - Change Order.
- M. Execution of Change Orders: Architect/Engineer will issue Change Orders for signatures of parties as provided in Conditions of the Contract.
- N. Correlation of Contractor Submittals:
 - 1. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as separate line item and adjust Contract Sum/Price.
 - 2. Promptly revise Progress Schedules to reflect change in Contract Time, revise subschedules to adjust times for other items of Work affected by the change, and resubmit.
 - 3. Promptly enter changes in Record Documents.

1.4 DEFECT ASSESSMENT

- A. Replace the Work, or portions of the Work, not conforming to specified requirements.

- B. If, in the opinion of Architect/Engineer, it is not practical to remove and replace the Work, Architect/Engineer will direct appropriate remedy or adjust payment.
- C. The defective Work may remain, but unit sum/price will be adjusted to new sum/price at discretion of Architect/Engineer.
- D. Defective Work may be partially repaired according to instructions of Architect/Engineer, and unit sum/price will be adjusted to new sum/price at discretion of Architect/Engineer.
- E. Individual Specification Sections may modify these options or may identify specific formula or percentage sum/price reduction.
- F. Authority of Architect/Engineer to assess defects and identify payment adjustments is final.
- G. Nonpayment for Rejected Products: Payment will not be made for rejected products for any of the following reasons:
 - 1. Products wasted or disposed of in a manner that is not acceptable.
 - 2. Products determined as unacceptable before or after placement.
 - 3. Products not completely unloaded from transporting vehicle.
 - 4. Products placed beyond lines and levels of the required Work.
 - 5. Products remaining on hand after completion of the Work.
 - 6. Loading, hauling, and disposing of rejected products.

1.5 Mobilization

A. Description

- 1. Basis of Measurement: Lump Sum
- 2. Basis of Payment: This work consists of preparatory work and operations including, but not limited to, the following:
 - a. The movement of personnel, equipment, supplies, and incidentals to the project site;
 - b. The establishment of the Contractor's office, buildings, and other facilities to support work on the project including associated job site posters;
 - c. Other work and operations the Contractor must perform;
 - d. Expenses incurred, before beginning work on pay items at the project site; and
 - e. Pre-construction costs, exclusive of bidding costs, that are necessary direct costs to the project rather than directly attributable to other pay items under the contract.

B. Maximum Price

- 1. The bid price for Mobilization shall not exceed 5% of the total bid amount.

C. Partial Payment Schedule

- 1. Partial payment will be made based on the percent of original contract amount earned as follows:
 - a. 5% of original contract amount earned – 50% of bid amount for Mobilization

- b. 10% of original contract amount earned – 75% of bid amount for Mobilization
 - c. 25% of original contract amount earned – 100% of bid amount for Mobilization
2. The percent of bid amount to be paid for Mobilization shown above is cumulative.

1.6 UNIT PRICES

- A. Authority: Measurement methods are delineated in individual Specification Sections.
- B. Measurement methods delineated in individual Specification Sections complement criteria of this Section. In event of conflict, requirements of individual Specification Section govern.
- C. Architect/Engineer will take measurements and compute quantities accordingly. Provide assistance in taking of measurements.
- D. Unit Quantities: Quantities and measurements indicated on Bid Form are for Contract purposes only. Actual quantities provided shall determine payment.
 1. When actual Work requires more or fewer quantities than those quantities indicated, provide required quantities at contracted unit sum/prices.
 2. When actual Work requires 25 percent or greater change in quantity than those quantities indicated, Owner or Contractor may claim a Contract Price adjustment.
- E. Payment Includes: Full compensation for required labor, products, tools, equipment, plant and facilities, transportation, services and incidentals; erection, application, or installation of item of the Work; overhead and profit.
- F. Final payment for Work governed by unit prices will be made on basis of actual measurements and quantities accepted by Architect/Engineer multiplied by unit sum/price for Work incorporated in or made necessary by the Work.
- G. Measurement of Quantities:
 1. Weigh Scales: Inspected, tested, and certified by applicable State weights and measures department within past year.
 2. Platform Scales: Of sufficient size and capacity to accommodate conveying vehicle.
 3. Metering Devices: Inspected, tested, and certified by applicable State department within past year.
 4. Measurement by Weight: Concrete reinforcing steel, rolled or formed steel, or other metal shapes will be measured by handbook weights. Welded assemblies will be measured by handbook or scale weight.
 5. Measurement by Volume: Measured by cubic dimension using mean length, width, and height or thickness.
 6. Measurement by Area: Measured by square dimension using mean length and width or radius.
 7. Linear Measurement: Measured by linear dimension, at item centerline or mean chord.
 8. Stipulated Sum/Price Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as completed item or unit of the Work.³

H. Unit Price Schedule:

1. Item: **Mobilization**; This Section
2. Item: **Clearing**; Section 31 10 00 - Site Clearing
3. Item: **Tree, Rem, 6 inch to 18 inch**; Section 31 10 00 - Site Clearing
4. Item: **Sewer, Rem, Less than 24 inch**; Section 31 10 00 – Site Clearing
5. Item: **Dr Structure, Rem**; Section 31 10 00 – Site Clearing
6. Item: **Culv End Sect, 15 inch**; Section 33 42 00 – Stormwater Conveyance
7. Item: **Sewer, CI II, 15 in, Tr Det A**; Section 33 42 00 – Stormwater Conveyance
8. Item: **Dr Structure Cover, Type E**; Section 33 05 61 – Concrete Manholes
9. Item: **Dr Structure, 48 inch dia**; Section 33 05 61 – Concrete Manholes
10. Item: **Riprap, Plain**; Section 31 37 16 - Riprap
11. Item: **Sodding**; Section 32 92 23 - Sodding
12. Item: **Erosion Control, Silt Fence**; - 31 25 00 – Erosion and Sediment Controls
13. Item: **Erosion Control, Turbidity Curtain**; - 31 25 00 – Erosion and Sediment Controls

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION

SECTION 01 25 00 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Quality assurance.
- B. Product options.
- C. Product substitution procedures.

1.2 QUALITY ASSURANCE

- A. Contract is based on products and standards established in Contract Documents without consideration of proposed substitutions.
- B. Products specified define standard of quality, type, function, dimension, appearance, and performance required.
- C. Substitution Proposals: Permitted for specified products except where specified otherwise. Do not substitute products unless substitution has been accepted and approved in writing by Owner.

1.3 PRODUCT OPTIONS

- A. See Section 01 60 00 - Product Requirements.

1.4 PRODUCT SUBSTITUTION PROCEDURES

- A. Architect/Engineer will consider requests for substitutions only within 30 days after date of Owner-Contractor Agreement.
- B. Substitutions may be considered when a product becomes unavailable through no fault of Contractor.
- C. Document each request with complete data, substantiating compliance of proposed substitution with Contract Documents, including:
 - 1. Manufacturer's name and address, product, trade name, model, or catalog number, performance and test data, and reference standards.
 - 2. Itemized point-by-point comparison of proposed substitution with specified product, listing variations in quality, performance, and other pertinent characteristics.
 - 3. Reference to Article and Paragraph numbers in Specification Section.
 - 4. Cost data comparing proposed substitution with specified product and amount of net change to Contract Sum.
 - 5. Changes required in other Work.

6. Availability of maintenance service and source of replacement parts as applicable.
7. Certified test data to show compliance with performance characteristics specified.
8. Samples when applicable or requested.
9. Other information as necessary to assist Architect/Engineer's evaluation.

D. A request constitutes a representation that Contractor:

1. Has investigated proposed product and determined that it meets or exceeds quality level of specified product.
2. Will provide same warranty for substitution as for specified product.
3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
4. Waives claims for additional costs or time extension that may subsequently become apparent.
5. Will coordinate installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.
6. Will reimburse Owner and Architect/Engineer for review or redesign services associated with reapproval by authorities having jurisdiction.

E. Substitutions will not be considered when they are indicated or implied on Shop Drawing or Product Data submittals without separate written request or when acceptance will require revision to Contract Documents.

F. Substitution Submittal Procedure:

1. Submit requests for substitutions on CSI Form 13.1A Substitution Request-After the Bidding/Negotiating Stage.
2. Submit electronic copies of Request for Substitution for consideration. Limit each request to one proposed substitution.
3. Submit Shop Drawings, Product Data, and certified test results attesting to proposed product equivalence. Burden of proof is on proposer.
4. Architect/Engineer will notify Contractor in writing of decision to accept or reject request.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION

SECTION 01 30 00 - ADMINISTRATIVE REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Preconstruction meeting.
- B. Site mobilization meeting.
- C. Progress meetings.
- D. Preinstallation meetings.
- E. Closeout meeting.
- F. Alteration procedures.

1.2 PRECONSTRUCTION MEETING

- A. Architect/Engineer will schedule and preside over meeting after Notice of Award.
- B. Attendance Required: Architect/Engineer, Owner, major Subcontractors, and Contractor.
- C. Minimum Agenda:
 - 1. Submission of executed bonds and insurance certificates.
 - 2. Distribution of Contract Documents.
 - 3. Submission of list of Subcontractors, list of products, schedule of values, and Progress Schedule.
 - 4. Designation of personnel representing parties in Contract.
 - 5. Communication procedures.
 - 6. Procedures and processing of requests for interpretations, field decisions, field orders, submittals, substitutions, Applications for Payments, proposal request, Change Orders, and Contract closeout procedures.
 - 7. Scheduling.
 - 8. Critical Work sequencing.
- D. Architect/Engineer: Record minutes and distribute electronic copies to participants within 7 days after meeting, to all attendees.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION

DRAFT - FOR REVIEW

SECTION 01 33 00 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Definitions.
- B. Submittal procedures.
- C. Proposed product list.
- D. Product data.
- E. Shop Drawings.
- F. Samples.
- G. Other submittals.
- H. Certificates.
- I. Manufacturer's instructions.
- J. Architect/Engineer review.

1.2 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect/Engineer's responsive action.
- B. Informational Submittals: Written and graphic information and physical Samples that do not require Architect/Engineer's responsive action. Submittals may be rejected for not complying with requirements.

1.3 SUBMITTAL PROCEDURES

- A. Transmit each submittal with Architect/Engineer-accepted form.
- B. Sequentially number transmittal forms. Mark revised submittals with original number and sequential alphabetic suffix.
- C. Identify: Project, Contractor, Subcontractor and supplier, pertinent Drawing and detail number, and Specification Section number appropriate to submittal.

- D. Apply Contractor's stamp, signed or initialed, certifying that review, approval, verification of products required, field dimensions, adjacent construction Work, and coordination of information is according to requirements of the Work and Contract Documents.
- E. Schedule submittals to expedite Project, and submit electronic submittals via email as PDF electronic files. Coordinate submission of related items.
- F. For each submittal for review, allow 15 days excluding delivery time to and from Contractor.
- G. Identify variations in Contract Documents and product or system limitations that may be detrimental to successful performance of completed Work.
- H. Allow space on submittals for Contractor and Architect/Engineer review stamps.
- I. When revised for resubmission, identify changes made since previous submission.
- J. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report inability to comply with requirements.
- K. Submittals not requested will not be recognized nor processed.
- L. Incomplete Submittals: Architect/Engineer will not review. Complete submittals for each item are required. Delays resulting from incomplete submittals are not the responsibility of Architect/Engineer.

1.4 PROPOSED PRODUCT LIST

- A. Within 15 days after date of Owner-Contractor Agreement, submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
- B. For products specified only by reference standards, indicate manufacturer, trade name, model or catalog designation, and reference standards.

1.5 PRODUCT DATA

- A. Product Data: Action Submittal: Submit to Architect/Engineer for review for assessing conformance with information given and design concept expressed in Contract Documents.
- B. Submit electronic submittals via email as PDF electronic files.
- C. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- D. After review, produce copies and distribute according to "Submittal Procedures" Article and for record documents described in Section 01 70 00 - Execution and Closeout Requirements.

1.6 SHOP DRAWINGS

- A. Shop Drawings: Action Submittal: Submit to Architect/Engineer for assessing conformance with information given and design concept expressed in Contract Documents.
- B. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. When required by individual Specification Sections, provide Shop Drawings signed and sealed by a professional Engineer responsible for designing components shown on Shop Drawings.
 - 1. Include signed and sealed calculations to support design.
 - 2. Submit Shop Drawings and calculations in form suitable for submission to and approval by authorities having jurisdiction.
 - 3. Make revisions and provide additional information when required by authorities having jurisdiction.
- D. Submit electronic submittals via email as PDF electronic files.
- E. After review, produce copies and distribute according to "Submittal Procedures" Article and for record documents described in Section 01 70 00 - Execution and Closeout Requirements.

1.7 SAMPLES

- A. Samples: Action Submittal: Submit to Architect/Engineer for assessing conformance with information given and design concept expressed in Contract Documents.
- B. Samples for Selection as Specified in Product Sections.

1.8 OTHER SUBMITTALS

- A. Closeout Submittals: Comply with Section 01 70 00 - Execution and Closeout Requirements.

1.9 CERTIFICATES

- A. Informational Submittal: Submit certification by manufacturer, installation/application Subcontractor, or Contractor to Architect/Engineer, in quantities specified for Product Data.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or product but must be acceptable to Architect/Engineer.

1.10 MANUFACTURER'S INSTRUCTIONS

- A. Informational Submittal: Submit manufacturer's installation instructions for Architect/Engineer's knowledge as Contract administrator or for Owner.

- B. Submit printed instructions for delivery, storage, assembly, installation, adjusting, and finishing, to Architect/Engineer in quantities specified for Product Data.
- C. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.11 ARCHITECT/ENGINEER REVIEW

- A. Informational submittals and other similar data are for Architect/Engineer's information, do not require Architect/Engineer's responsive action, and will not be reviewed or returned with comment.
- B. Submittals made by Contractor that are not required by Contract Documents may be returned without action.
- C. Submittal approval does not authorize changes to Contract requirements unless accompanied by Change Order, Field Order, or Work Change Directive.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION

SECTION 01 40 00 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Quality control.
- B. Tolerances.
- C. References.
- D. Testing and inspection services.

1.2 QUALITY CONTROL

- A. Monitor quality control over suppliers, manufacturers, products, services, Site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with specified standards as the minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- C. Perform Work using persons qualified to produce required and specified quality.
- D. Products, materials, and equipment may be subject to inspection by Architect/Engineer and Owner at place of manufacture or fabrication. Such inspections shall not relieve Contractor of complying with requirements of Contract Documents.
- E. Supervise performance of Work in such manner and by such means to ensure that Work, whether completed or in progress, will not be subjected to harmful, dangerous, damaging, or otherwise deleterious exposure during construction period.

1.3 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' recommended tolerances and tolerance requirements in reference standards. When such tolerances conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

1.4 REFERENCES

- A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of standard except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current as of date for receiving Bids except where specific date is established by code.
- C. Obtain copies of standards and maintain on Site when required by product Specification Sections.
- D. When requirements of indicated reference standards conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.
- E. Neither contractual relationships, duties, or responsibilities of parties in Contract nor those of Architect/Engineer shall be altered from Contract Documents by mention or inference in reference documents.

1.5 TESTING AND INSPECTION SERVICES

- A. Architect/Engineer will perform tests, inspections, and other services specified in individual Specification Sections and as required.
- B. Cooperate with inspector/tester; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.
 - 1. Notify Architect/Engineer 48 hours before expected time for operations requiring services.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION

SECTION 01 60 00 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Products.
- B. Product delivery requirements.
- C. Product storage and handling requirements.
- D. Product options.
- E. Equipment electrical characteristics and components.

1.2 PRODUCTS

- A. At minimum, comply with specified requirements and reference standards.
- B. Specified products define standard of quality, type, function, dimension, appearance, and performance required.
- C. Furnish products of qualified manufacturers that are suitable for intended use. Furnish products of each type by single manufacturer unless specified otherwise. Confirm that manufacturer's production capacity can provide sufficient product, on time, to meet Project requirements.
- D. Do not use materials and equipment removed from existing premises except as specifically permitted by Contract Documents.
- E. Furnish interchangeable components from same manufacturer for components being replaced.

1.3 PRODUCT DELIVERY REQUIREMENTS

- A. Transport and handle products according to manufacturer's instructions.
- B. Promptly inspect shipments to ensure products comply with requirements, quantities are correct, and products are undamaged.
- C. Provide equipment and personnel to handle products; use methods to prevent soiling, disfigurement, or damage.

1.4 PRODUCT STORAGE AND HANDLING REQUIREMENTS

- A. Store and protect products according to manufacturer's instructions.

- B. Store products with seals and labels intact and legible.
- C. Store sensitive products in weathertight, climate-controlled enclosures in an environment suitable to product.
- D. For exterior storage of fabricated products, place products on sloped supports aboveground.
- E. Provide off-Site storage and protection when Site does not permit on-Site storage or protection.
- F. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- G. Store loose granular materials on solid flat surfaces in well-drained area. Prevent mixing with foreign matter.
- H. Provide equipment and personnel to store products; use methods to prevent soiling, disfigurement, or damage.
- I. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

1.5 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Products complying with specified reference standards or description.
- B. Products Specified by Naming One or More Manufacturers: Products of one of manufacturers named and complying with Specifications; no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with Provision for Substitutions: Submit Request for Substitution for any manufacturer not named, according to Section 01 25 00 - Substitution Procedures.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION

SECTION 01 70 00 - EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Closeout procedures.
- B. Protecting installed construction.
- C. Final cleaning.

1.2 CLOSEOUT PROCEDURES

- A. Prerequisites to Substantial Completion: Complete following items before requesting Certification of Substantial Completion, either for entire Work or for portions of Work:
 - 1. Conduct inspection to establish basis for request that Work is substantially complete. Create comprehensive list (initial punch list) indicating items to be completed or corrected, value of incomplete or nonconforming Work, reason for being incomplete, and date of anticipated completion for each item. Include copy of list with request for Certificate of Substantial Completion.
 - 2. Perform final cleaning according to this Section.
- B. Substantial Completion Inspection:
 - 1. When Contractor considers Work to be substantially complete, submit to Architect/Engineer:
 - a. Written certificate that Work, or designated portion, is substantially complete.
 - b. List of items to be completed or corrected (initial punch list).
 - 2. Within seven days after receipt of request for Substantial Completion, Architect/Engineer will make inspection to determine whether Work or designated portion is substantially complete.
 - 3. Should Architect/Engineer determine that Work is not substantially complete:
 - a. Architect/Engineer will promptly notify Contractor in writing, stating reasons for its opinion.
 - b. Contractor shall remedy deficiencies in Work and send second written request for Substantial Completion to Architect/Engineer.
 - c. Architect/Engineer will reinspect Work.
 - d. Redo and Inspection of Deficient Work: Repeated until Work passes Architect/Engineer's inspection.
 - 4. When Architect/Engineer finds that Work is substantially complete, Architect/Engineer will:

- a. Prepare Certificate of Substantial Completion on EJCDC C-625 - Certificate of Substantial Completion, accompanied by Contractor's list of items to be completed or corrected as verified and amended by Architect/Engineer and Owner (final punch list).
- b. Submit Certificate to Owner and Contractor for their written acceptance of responsibilities assigned to them in Certificate.
5. After Work is substantially complete, Contractor shall:
- a. Allow Owner occupancy of Project under provisions stated in Certificate of Substantial Completion.
- b. Complete Work listed for completion or correction within time period stipulated.
- C. Prerequisites for Final Completion: Complete following items before requesting final acceptance and final payment.
1. When Contractor considers Work to be complete, submit written certification that:
- a. Contract Documents have been reviewed.
- b. Work has been examined for compliance with Contract Documents.
- c. Work has been completed according to Contract Documents.
- d. Work is completed and ready for final inspection.
2. Submittals: Submit following:
- a. Final punch list indicating all items have been completed or corrected.
- b. Final payment request with final releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
- c. Specified warranties, workmanship/maintenance bonds, maintenance agreements, and other similar documents.
- d. Accounting statement for final changes to Contract Sum.
3. Perform final cleaning for Contractor-soiled areas according to this Section.
- D. Final Completion Inspection:
1. Within seven days after receipt of request for final inspection, Architect/Engineer will make inspection to determine whether Work or designated portion is complete.
2. Should Architect/Engineer consider Work to be incomplete or defective:
- a. Architect/Engineer will promptly notify Contractor in writing, listing incomplete or defective Work.
- b. Contractor shall remedy stated deficiencies and send second written request to Architect/Engineer that Work is complete.
- c. Architect/Engineer will reinspect Work.
- d. Redo and Inspection of Deficient Work: Repeated until Work passes Architect/Engineer's inspection.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION

3.1 PROTECTING INSTALLED CONSTRUCTION

- A. Protect installed Work and provide special protection where specified in individual Specification Sections.
- B. Provide temporary and removable protection for installed products. Control activity in immediate Work area to prevent damage.
- C. Prohibit traffic from landscaped areas.

3.2 FINAL CLEANING

- A. Execute final cleaning prior to final Project assessment.
- B. Clean Site; sweep paved areas, rake clean landscaped surfaces.
- C. Remove waste and surplus materials, rubbish, and construction facilities from Site.

END OF SECTION

SECTION 31 05 13 - SOILS FOR EARTHWORK

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Subsoil materials.

B. Related Requirements:

1. Section 31 23 16.13 - Trenching: Excavating as required for building foundations and utilities within building perimeter.
2. Section 31 25 00 - Erosion and Sedimentation Controls: Slope protection and erosion control.
3. Section 31 37 16.13 - Riprap
4. Section 32 91 19 - Landscape Grading: Placing, leveling, and compacting topsoil materials prior to final landscaping Work.
5. Section 32 92 23 - Sodding: Preparation of subsoil, placement of topsoil, fertilization, sod installation, and maintenance.
6. Section 32 93 00 - Plants: Preparation of topsoil bedding, trees, plants, ground cover, mulch, fertilizer, pruning, and maintenance.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENTS

- ##### A. The products and work included in this Section are included in pay items described in other Sections.

1.3 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials:

1. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

B. ASTM International:

1. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
2. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
3. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
4. ASTM D6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit name of imported materials source.
- C. Samples: Submit, in airtight containers, 10-lb. (4.5-kg) sample of each type of fill to testing laboratory.
- D. Supplier's Certificate: Certify that products meet or exceed specified requirements.

1.5 QUALITY ASSURANCE

- A. Furnish each subsoil and topsoil material from single source throughout Work.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Subsoil:
 - a. MDOT Class II granular material
 - b. Excavated material as accepted by Engineer

2.2 SOURCE QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for testing, inspection, and analysis.
- B. Testing and Analysis:
 - 1. Subsoil Material: Comply with MDOT density requirements for sand trench backfill
 - 2. If tests indicate materials do not meet specified requirements, change material and retest.
- C. Owner Inspection:
 - 1. Make subsoil and topsoil available for inspection.
 - 2. Notify Owner at least seven days before inspection is allowed.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Excavation:
 - 1. Excavate subsoil and topsoil from designated areas.
 - 2. Strip topsoil to full depth of topsoil in designated areas.

3. Remove excess excavated materials not intended for reuse from Site.
4. Remove excavated materials not meeting requirements for subsoil and topsoil materials from Site.

B. Stockpiling:

1. Stockpile excavated material meeting requirements for subsoil and topsoil materials.
2. Stockpile materials on Site.
3. Stockpile in sufficient quantities to meet Project schedule and requirements.
4. Separate differing materials with dividers or stockpile apart to prevent intermixing of soil types or contamination.
5. Stockpile topsoil maximum 8 feet (2.5 m) high.
6. Direct surface water away from stockpile to prevent erosion or deterioration of materials.

3.2 CLEANING

A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for cleaning.

B. Stockpile:

1. Remove stockpile and leave area in clean and neat condition.
2. Grade Site surface to prevent freestanding surface water.

END OF SECTION

SECTION 31 05 19.13 - GEOTEXTILES FOR EARTHWORK

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Nonwoven geotextile material.

B. Related Requirements:

1. Section 31 05 13 - Soils for Earthwork: Fill and grading materials.
2. Section 31 23 16.13 - Trenching: Soil and subsoil materials for fill and grading purposes.
3. Section 31 23 23 - Fill: Backfilling required at building perimeter and Site structures to subgrade elevations; fill under slabs on grade, pavement, and landscaped areas.
4. Section 31 25 00 - Erosion and Sedimentation Controls: Erosion and sedimentation control devices.
5. Section 31 37 00 - Riprap: Riprap and rock lining used for soil stabilization and slope protection.
6. Section 32 05 13 - Soils for Exterior Improvements: Soil and subsoil materials for fill and grading purposes.
7. Section 32 91 19 - Landscape Grading: Placing, leveling, and compacting topsoil materials prior to final landscaping.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. The products and work included in this Section are included in pay items described in other Sections.

1.3 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials:

1. AASHTO M288 - Standard Specification for Geotextile Specification for Highway Applications.

B. ASTM International:

1. ASTM D4355/D4355M - Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus.
2. ASTM D4491/D4491M - Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
3. ASTM D4533/D4533M - Standard Test Method for Trapezoid Tearing Strength of Geotextiles.
4. ASTM D4632/D4632M - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.

5. ASTM D4751 - Standard Test Method for Determining Apparent Opening Size of a Geotextile.
6. ASTM D4833/D4833M - Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products.
7. ASTM D4873 - Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples.
8. ASTM D4884/D4844M - Standard Test Method for Strength of Sewn or Bonded Seams of Geotextiles.
9. ASTM D4886 - Standard Test Method for Abrasion Resistance of Geotextiles (Sand Paper/Sliding Block Method).
10. ASTM D6524 - Standard Test Method for Measuring the Resiliency of Turf Reinforcement Mats (TRMs).
11. ASTM D6525/D6525M - Standard Test Method for Measuring Nominal Thickness of Rolled Erosion Control Products.
12. ASTM D6566 - Standard Test Method for Measuring Mass per Unit Area of Turf Reinforcement Mats.
13. ASTM D6567 - Standard Test Method for Measuring the Light Penetration of a Turf Reinforcement Mat (TRM).
14. ASTM D6575 - Standard Test Method for Determining Stiffness of Geosynthetics Used as Turf Reinforcement Mats (TRMs).
15. ASTM D6818 - Standard Test Method for Ultimate Tensile Properties of Rolled Erosion Control Products.

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit manufacturer information including tensile strength, elongation, thickness, UV resistance, and other material specifications.
- C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- D. Manufacturer Instructions: Submit detailed instructions on installation requirements, including storage and handling procedures.
- E. Source Quality-Control Submittals: Indicate results of factory tests and inspections.
- F. Qualifications Statements:
 1. Submit qualifications for manufacturer and installer.
 2. Submit manufacturer's approval of installer.

1.5 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.

1.6 QUALITY ASSURANCE

- A. Perform Work according to Ypsilanti Charter Township, Washtenaw County Water Resources Commissioner, and MDOT standards.

1.7 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' experience.
- B. Installer: Company specializing in performing Work of this Section with minimum three years' experience.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- C. Comply with ASTM D4873.
- D. Store materials according to manufacturer instructions.
- E. Protection:
 - 1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
 - 2. Provide additional protection according to manufacturer instructions.

PART 2 - PRODUCTS

2.1 NONWOVEN GEOTEXTILE MATERIALS

- A. Manufacturers:
 - 1. Furnish materials according to Section 910 of the Michigan Department of Transportation 2012 Standards and Specifications for Construction for Geotextile Liner.
- B. Description:
 - 1. Non-biodegradable, UV-resistant, nonwoven geotextile fabric.
 - 2. Material: Long-chain synthetic fiber of at least 85 percent, by weight, polyolefins or polyesters.
 - 3. Calendar such that yarns will retain relative positions.
- C. Performance and Design Criteria:

1. Apparent Opening Size: 0.21 mm
2. Water Permittivity: 0.5 per second, minimum average roll value.
3. Trapezoidal Tear Strength:
 - a. 75 lbf, minimum average roll value.
 - b. Comply with ASTM D4533.
4. Puncture Strength:
 - a. 75 lbf, minimum average roll value.
 - b. Comply with ASTM D4833/D4833M.

2.2 SOURCE QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for testing, inspection, and analysis.
- B. Provide shop inspection and testing of completed assembly.
- C. Certificate of Compliance:
 1. If manufacturer is approved by authorities having jurisdiction, submit certificate of compliance indicating Work performed at manufacturer's facility conforms to Contract Documents.
 2. Specified shop tests are not required for Work performed by approved manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation examination.
- B. Verify that underlying surface is smooth and free of ruts or protrusions that could damage geotextile material.

3.2 PREPARATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation preparation.

3.3 INSTALLATION

- A. Geotextile Material:
 1. Lay and maintain smooth and free of tensile stresses, folds, wrinkles, or creases.
 2. Ensure that material is in direct contact with subgrade.
 3. Minimum Unseamed Joints Overlap: 18 inches (450 mm).

B. Fill and Cover:

1. Place fill to prevent tensile stress or wrinkles in geotextile.
2. Place fill from bottom of side-slopes upward.
3. Do not drop fill from height greater than 3 feet (1 m).

3.4 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for inspecting and testing.

3.5 PROTECTION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for protecting finished Work.
- B. Ballast: Adequate to prevent uplift of material by wind.
- C. UV Exposure: Do not leave material uncovered for more than 1 day after installation.
- D. Do not operate equipment directly on top of geotextile.

END OF SECTION

SECTION 31 10 00 - SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Removing designated trees, shrubs, and other plant life.
2. Removing sewer pipe and structures.
3. Excavating topsoil.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Clearing:

1. Basis of Measurement: By lump sum.
2. Basis of Payment: Includes all associated labor, material, and equipment for clearing site, loading and removing waste materials from site, applying herbicide to designated plant life. Removal of trees with less than 6 inch caliper, measured 4 feet above the ground, is included in Clearing.

B. Tree, Rem, 6 inch to 18 inch

1. Basis of Measurement: By each.
2. Basis of Payment: Includes all associated labor, material, and equipment for the cutting and removal from site of a tree of 6 inch to 18 inch caliper, measured 4 feet above the ground. Stumps are to be ground or removed one foot below ground.

C. Sewer, Rem, Less than 24 inch

1. Basis of Measurement: By lin. Foot.
2. Basis of Payment: Includes all associated labor and equipment for the removal of existing storm sewer pipe, end section, and any attachments/appurtenances.

D. Dr Structure, Rem

1. Basis of Measurement: By each.
2. Basis of Payment: Includes all associated labor and equipment for the removal of existing drainage structure, frame, lid and any attachments. Also included is the salvaging of existing connected pipes to remain for future use.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.
- B. Verify existing plant life designated to remain is tagged or identified.

3.2 PREPARATION

- A. Call MissDIG not less than three working days before performing Work.
 - 1. Request underground utilities to be located and marked within and surrounding construction areas.

3.3 PROTECTION

- A. Locate, identify, and protect utilities indicated to remain, from damage.
- B. Protect trees, plant growth, and features designated to remain, as final landscaping.
- C. Protect bench marks, survey control points, and existing structures from damage or displacement.

3.4 CLEARING

- A. Clear areas required for access to site and execution of Work.
- B. Remove trees and shrubs within marked areas.
- C. Clear undergrowth and deadwood, without disturbing subsoil.

3.5 REMOVAL

- A. Remove debris, rock, and extracted plant life from site.
- B. Continuously clean-up and remove waste materials from site. Do not allow materials to accumulate on site.
- C. Do not burn or bury materials on site. Leave site in clean condition.

END OF SECTION

SECTION 31 23 16.13 - TRENCHING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Excavating trenches for storm sewer.
2. Compacted fill from top of utility bedding to subgrade elevations.
3. Backfilling and compaction.

B. Related Sections:

1. Section 31 05 13 - Soils for Earthwork: Soils for fill.
2. Section 31 05 16 - Aggregates for Earthwork: Aggregates for fill.
3. Section 31 23 16 - Excavation: General building excavation.
4. Section 31 37 00 - Riprap.
5. Section 32 91 19 - Landscape Grading: Filling of topsoil over backfilled trenches to finish grade elevation.
6. Section 33 42 00 - Stormwater Conveyance.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. The products and work included in this Section are included in pay items described in other Sections.

1.3 REFERENCES

A. American Association of State Highway and Transportation Officials:

1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

B. ASTM International:

1. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³).
2. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³).
4. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
5. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
6. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

1.4 DEFINITIONS

- A. Utility: Any buried pipe, duct, conduit, or cable.

1.5 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Excavation Protection Plan: Describe sheeting, shoring, and bracing materials and installation required to protect excavations and adjacent structures and property; include structural calculations to support plan.
- C. Product Data: Submit data for geotextile fabric indicating fabric and construction.
- D. Samples: Submit, in air-tight containers, 10 lb. (4.5 kg) sample of each type of fill to testing laboratory.
- E. Materials Source: Submit name of imported fill materials suppliers.
- F. Manufacturer's Certificate: Certify materials meet or exceed specified requirements.

1.6 QUALITY ASSURANCE

- A. Perform Work in accordance with Ypsilanti Charter Township, Washtenaw County Water Resources Commissioner, and MDOT requirements
- B. Maintain one copy of each document on site.

1.7 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

1.8 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Verify Work associated with lower elevation utilities is complete before placing higher elevation utilities.

PART 2 - PRODUCTS

2.1 FILL MATERIALS

- A. Per Section 31 05 13 – Soils for Earthwork

PART 3 - EXECUTION

3.1 LINES AND GRADES

- A. Lay pipes to lines and grades indicated on Drawings.
 - 1. Architect/Engineer reserves right to make changes in lines, grades, and depths of utilities when changes are required for Project conditions.
- B. Use laser-beam instrument with qualified operator to establish lines and grades.

3.2 PREPARATION

- A. Call MissDIG not less than three working days before performing Work.
 - 1. Request underground utilities to be located and marked within and surrounding construction areas.
- B. Identify required lines, levels, contours, and datum locations.
- C. Protect plant life, lawns, rock outcropping and other features remaining as portion of final landscaping.
- D. Protect benchmarks, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- E. Maintain and protect above and below grade utilities indicated to remain.

3.3 TRENCHING

- A. Excavate subsoil required for utilities.
- B. Coordinate rock size with Section 31 23 18 to match trench rock definition.
- C. Remove lumped subsoil, boulders, and rock up of 1/6 cubic yard (0.13 cu m), measured by volume.
- D. Perform excavation within 24 inches (600 mm) of existing utility service in accordance with utility's requirements.
- E. Cut trenches to width indicated on Drawings. Remove water or materials that interfere with Work.
- F. Excavate trenches to depth indicated on Drawings. Provide uniform and continuous bearing and support for bedding material and pipe.
- G. Do not interfere with 45 degree bearing splay of foundations.

- H. When Project conditions permit, slope side walls of excavation starting 2 feet (600 mm) above top of pipe. When side walls cannot be sloped, provide sheeting and shoring to protect excavation as specified in this section.
- I. When subsurface materials at bottom of trench are loose or soft, excavate to greater depth as directed by Architect/Engineer until suitable material is encountered.
- J. Cut out soft areas of subgrade not capable of compaction in place. Backfill with MDOT Class II granular material and compact to density equal to or greater than requirements for subsequent backfill material.
- K. Trim excavation. Hand trim for bell and spigot pipe joints. Remove loose matter.
- L. Correct areas over excavated areas with compacted backfill as specified for authorized excavation or replace with fill concrete as directed by Architect/Engineer.
- M. Remove excess subsoil not intended for reuse, from site.

3.4 SHEETING AND SHORING

- A. Sheet, shore, and brace excavations to prevent danger to persons, structures and adjacent properties and to prevent caving, erosion, and loss of surrounding subsoil.
- B. Support trenches more than 5 feet (1500 mm) deep excavated through unstable, loose, or soft material. Provide sheeting, shoring, bracing, or other protection to maintain stability of excavation.
- C. Design sheeting and shoring to be removed at completion of excavation work.
- D. Repair damage caused by failure of the sheeting, shoring, or bracing and for settlement of filled excavations or adjacent soil.
- E. Repair damage to new and existing Work from settlement, water or earth pressure or other causes resulting from inadequate sheeting, shoring, or bracing.

3.5 BACKFILLING

- A. Backfill trenches to contours and elevations with unfrozen fill materials.
- B. All manholes, pipes, and other utilities shall be backfilled with Class II sand. Backfill above a point one foot over the top of pipe may consist of excavated native material as approved by Engineer.
- C. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.
- D. If an aggregate such as 6A is used for backfill, envelop said aggregate with geotextile fabric to prevent infiltration of granular material and fines into the voids in the aggregate.
- E. Place fill material in continuous layers and compact.

- F. Employ placement method that does not disturb or damage utilities in trench.
- G. Maintain optimum moisture content of fill materials to attain required compaction density.
- H. Do not leave more than 50 feet (15 meters) of trench open at end of working day.
- I. Protect open trench to prevent danger to the public.

3.6 TOLERANCES

- A. Section 01 40 00 - Quality Requirements: Tolerances.
- B. Top Surface of Backfilling: Plus or minus 1 inch (25 mm) from required elevations.
- C. Top Surface of General Backfilling: Plus or minus 1 inch (25 mm) from required elevations.

3.7 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Perform in place compaction tests in accordance with the following:
 - 1. Density Tests: One-Point Michigan cone and ASTM D2922.
 - 2. Moisture Tests: ASTM D3017 or "Speedy Moisture Gauge".
- C. When tests indicate Work does not meet specified requirements, remove Work, replace, compact, and retest.
- D. Frequency of Tests: Engineer's discretion.

3.8 PROTECTION OF FINISHED WORK

- A. Section 01 70 00 - Execution and Closeout Requirements: Protecting finished work.
- B. Reshape and re-compact fills subjected to vehicular traffic during construction.

END OF SECTION

SECTION 31 25 00 - EROSION AND SEDIMENTATION CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Silt Fence
2. Turbidity Curtain

B. Related Sections:

1. Section 31 05 13 - Soils for Earthwork.
2. Section 31 05 19.13 - Geotextiles for Earthwork
3. Section 31 10 00 - Site Clearing.
4. Section 31 23 16.13 - Trenching.
5. Section 31 37 00 - Riprap.
6. Section 32 91 19 - Landscape Grading
7. Section 32 92 23 - Sodding
8. Section 33 05 61 – Concrete Manholes
9. Section 33 42 00 – Stormwater Conveyance.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Erosion Control, Silt Fence

1. Basis of Measurement: By linear foot.
2. Basis of Payment: Includes all associated labor, materials, and equipment to provide, install, maintain, remove, and dispose of the silt fence and posts.

B. Erosion Control, Turbidity Curtain

1. Basis of Measurement: By linear foot.
2. Basis of Payment: Includes all associated labor, materials, and equipment to provide, install, maintain, and remove turbidity curtains.

1.3 REFERENCES

A. American Association of State Highway and Transportation Officials:

1. AASHTO T88 - Standard Specification for Particle Size Analysis of Soils.
2. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

B. American Concrete Institute:

1. ACI 301 - Specifications for Structural Concrete.

C. ASTM International:

1. ASTM C127 - Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate.
2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³).
3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³).
4. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
5. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

D. Precast/Prestressed Concrete Institute:

1. PCI MNL-116S - Manual for Quality Control for Plants and Production of Precast and Prestressed Concrete Products.

1.4 SUBMITTALS

- A. Submit product data for silt fence and turbidity curtain

1.5 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.

1.6 QUALITY ASSURANCE

- A. Perform Work according to MDOT, Ypsilanti Township, and Washtenaw County Water Resources Commissioner's standards.
- B. Maintain one copy of each document on site.

PART 2 - PRODUCTS

2.1 SILT FENCE

- A. Furnish materials in accordance with Section 91 6.02 of the 2012 MDOT Standard Specifications for Construction.

2.2 TURBIDITY CURTAIN

- A. Furnish materials in accordance with Section 91 6.07 of the 2012 MDOT Standard Specifications for Construction

PART 3 - EXECUTION

3.1 INSTALLATION

A. Silt fence

1. Provide, install, maintain, remove, and dispose of silt fence, consisting of woven geotextile fabric stapled to, and supported by posts. Place material removed from trenching in the silt fence on the upslope side of the silt fence. In areas where water ponds behind the silt fence, provide a stone filter to channel away the water and prevent failure. Silt fence may remain in place after the required period, if directed by the Engineer.

B. Turbidity Curtain

1. Provide, install, maintain, remove, and dispose of shallow or deep turbidity curtain at the locations shown on the plans, or as directed by the Engineer. Use shallow turbidity curtain when the water is no greater than 2 feet deep. Use deep turbidity curtain when the water is greater than 2 feet deep. Provide a floating or staked turbidity curtain, as required. During removal, minimize sediment loss.

3.2 REMOVAL

- A. Remove or obliterate temporary erosion and sedimentation controls when the permanent controls are complete and approved, unless otherwise directed by the Engineer. Do not remove temporary controls next to lakes, watercourses, or wetlands until the establishment of turf on the adjacent slopes. Before placing topsoil, permanent seed, and fertilizer, remove or incorporate mulch, placed for temporary erosion control, into the slope. Minimize erosion and sedimentation into watercourses during removal of erosion controls. Repair damage caused during the removal of erosion controls at no additional cost to the OWNER.

3.3 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Inspect erosion control devices on a weekly basis and after each runoff event. Make necessary repairs to ensure erosion and sediment controls are in good working order.

3.4 CLEANING

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for cleaning.
- B. When sediment accumulation in silt fence has reached a point one-third depth of sediment structure or device, remove and dispose of sediment.
- C. Do not damage soil erosion and sedimentation control devices during cleaning operations.
- D. Do not permit sediment to erode into construction or site areas or natural waterways.

3.5 PROTECTION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for protecting finished Work.

END OF SECTION

DRAFT - FOR REVIEW

SECTION 31 37 16.13 - RIPRAP

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Riprap placed loose.
- B. Related Requirements:
 - 1. Section 31 05 19.13 - Geotextiles for Earthwork: Protective barrier.
 - 2. Section 31 22 13 - Rough Grading: Removal of topsoil and filling associated with contouring of Site.
 - 3. Section 31 23 16 - Excavation: Excavating for riprap.
 - 4. Section 31 23 16.13 - Trenching: Trenching and backfilling for Site utilities.
 - 5. Section 33 42 13 – Stormwater Conveyance: Excavating, bedding, and backfilling requirements for accessories.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Section 01 20 00 - Price and Payment Procedures: Contract Sum/Price modification procedures.
- B. Riprap, Plain:
 - 1. Basis of Measurement: By square yard of total riprap area.
 - 2. Basis of Payment: Includes all associated labor, material, and equipment necessary to place riprap. This pay item includes the excavation, geotextile fabric, and any other preparations necessary for the proper placement of riprap.

1.3 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.
- B. Coordinate Work of this Section with rough grading, excavating, and utilities Work.

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit manufacturer information regarding size distribution and types for rock for riprap.
- C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- D. Qualifications Statement:

1. Submit qualifications for manufacturer.

1.5 QUALITY ASSURANCE

- A. Furnish each aggregate material from single source throughout Work of this Section.
- B. Perform Work according to Washtenaw County Water Resources Commissioner, Ypsilanti Charter Township, and MDOT standards.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' experience.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Furnish materials according to MDOT Standard Specifications for Construction Division 9 section 916 standards for Plain Riprap.

PART 3 - EXECUTION

3.1 APPLICATION

- A. Place geotextile fabric over substrate as specified in Section 31 05 19.13 - Geotextiles for Earthwork.
- B. Place riprap where indicated on Drawings.
- C. Place riprap into position and remove foreign material from surfaces.
- D. Do not place riprap over frozen or spongy subgrade surfaces.
- E. Average Installed Thickness: As indicated on Drawings.

END OF SECTION

SECTION 32 91 19 - LANDSCAPE GRADING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Final grade topsoil for finish landscaping.

B. Related Sections:

1. Section 31 05 13 - Soils For Earthwork
2. Section 31 23 17 - Trenching: Backfilling trenches.
3. Section 32 92 23 - Sodding
4. Section 32 93 00 - Plants: Topsoil fill for trees, plants and ground cover.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- ##### A. Work described herein is to be included with pay items described in other sections.

1.3 SUBMITTALS

- ##### A. Section 01 33 00 - Submittal Procedures: Submittal procedures

- ##### B. Materials Source: Submit name of imported materials source.

- ##### C. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

1.4 QUALITY ASSURANCE

- ##### A. Furnish each topsoil material from single source throughout the Work.

- ##### B. Perform Work in accordance with Ypsilanti Charter Township requirements.

PART 2 - PRODUCTS – Not Used

PART 3 - EXECUTION

3.1 EXAMINATION

- ##### A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.

- B. Verify trench backfilling have been inspected.
- C. Verify substrate base has been contoured and compacted.

3.2 PREPARATION

- A. Protect landscaping and other features remaining as final Work.
- B. Protect existing structures, fences, sidewalks, utilities, paving, and curbs.

3.3 SUBSTRATE PREPARATION

- A. Eliminate uneven areas and low spots.
- B. Remove debris, roots, branches, stones, in excess of 1/2 inch (13 mm) in size. Remove contaminated subsoil.
- C. Scarify surface to depth of 3 inches (75 mm) where topsoil is scheduled. Scarify in areas where equipment used for hauling and spreading topsoil has compacted subsoil.

3.4 PLACING TOPSOIL

- A. Place topsoil in areas where seeding is required to nominal depth of 3 inches (75 mm). Place topsoil during dry weather.
- B. Fine grade topsoil to eliminate rough or low areas. Maintain profiles and contour of subgrade.
- C. Remove roots, weeds, rocks, and foreign material while spreading.
- D. Manually spread topsoil close to plant material and fencing to prevent damage.
- E. Roll placed topsoil.
- F. Remove surplus subsoil and topsoil from site.
- G. Leave stockpile area and site clean and raked, ready to receive landscaping.

3.5 TOLERANCES

- A. Section 01 40 00 - Quality Requirements: Tolerances.
- B. Top of Topsoil: Plus or minus 1/2 inch (13 mm).

3.6 PROTECTION OF INSTALLED WORK

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for protecting finished Work.

- B. Prohibit construction traffic over topsoil.

END OF SECTION

DRAFT - FOR REVIEW

SECTION 32 92 23 - SODDING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Preparation of subsoil.
2. Placement of topsoil.
3. Fertilization.
4. Sod installation.
5. Maintenance.

B. Related Requirements:

1. Section 31 23 16.13 - Trenching: Rough grading over cut.
2. Section 32 91 19 - Landscape Grading: Preparation of subsoil and placement of topsoil in preparation for Work of this Section.
3. Section 32 93 00 - Plants: Interior and exterior landscaping.

1.2 DEFINITIONS

- ##### A. Weeds: Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.

1.3 UNIT PRICE - MEASUREMENT AND PAYMENT

- ##### A. Section 01 20 00 - Price and Payment Procedures: Contract Sum/Price modification procedures.

B. Sodding:

1. Basis of Measurement: By square yard.
2. Basis of Payment: Includes all necessary labor, material, and equipment necessary for preparation of subsoil and topsoil, placement of topsoil and sod, watering and fertilizing, and maintenance as specified.

1.4 REFERENCE STANDARDS

A. ASTM International:

1. ASTM C602 - Standard Specification for Agricultural Liming Materials.

B. Turfgrass Producers International:

1. TPI - Guideline Specifications To Turfgrass Sodding.

1.5 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.
- B. Coordinate Work of this Section with installation of underground sprinkler system piping and watering heads.

1.6 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data:
 1. Submit sod producer's information for sod grass species.
 2. Submit manufacturer information for fertilizer, mulch, and other accessories.
- C. Sod Producer's Certificate: Certify that sod grass meets or exceeds specified requirements.
- D. Qualifications Statements:
 1. Submit qualifications for sod producer, manufacturer, and installer.
 2. Submit sod producer's approval of installer.

1.7 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.
- B. Operation and Maintenance Data:
 1. Submit maintenance instructions, cutting method, and maximum grass height.
 2. Submit fertilizer types, application frequency, and recommended coverage.

1.8 QUALITY ASSURANCE

- A. Sod: Ensure root development capable of supporting its own weight without tearing when suspended vertically by holding upper two corners.
- B. Perform Work according to MDOT standards.
- C. Maintain a copy of each standard affecting Work of this Section on Site.

1.9 QUALIFICATIONS

- A. Sod Producer: Company specializing in products as specified in this Section with minimum three years' documented experience.

- B. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' documented experience.
- C. Installer: Company specializing in performing Work of this Section with minimum three years' documented experience and approved by sod producer.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Delivery:
 - 1. Do not deliver more sod than can be laid within 24 hours.
- C. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- D. Store materials according to manufacturer instructions.
- E. Protection:
 - 1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
 - 2. Protect exposed roots from dehydration.
 - 3. Provide additional protection according to manufacturer instructions.

1.11 AMBIENT CONDITIONS

- A. Section 01 50 00 - Temporary Facilities and Controls: Requirements for ambient condition control facilities for product storage and installation.
- B. Minimum Conditions: Do not place sod when temperature is lower than 32 deg. F.

PART 2 - PRODUCTS

2.1 SODDING

- A. Sod Growers:
 - 1. Furnish materials according to Section 917 of the 2012 MDOT Standard Specifications for Construction.
- B. Description:
 - 1. Provide sod consisting of a densely rooted blend of at least two bluegrass varieties with at least 30 percent creeping red fescue content, free of weeds, and grown on the same or similar soil as the topsoil on the project.

2.2 MATERIALS

- A. Topsoil: Excavated from Site and free of weeds.

2.3 ACCESSORIES

- A. Fertilizer:

- 1. Class A seeding and sodding fertilizer in accordance with 917 of the 2012 MDOT Standard Specifications for Construction.

- B. Water: Clean, fresh, and free of substances or matter capable of inhibiting vigorous growth of grass.

2.4 SOURCE QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for testing, inspection, and analysis.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation examination.
- B. Verify that prepared soil base is ready to receive Work of this Section.

3.2 INSTALLATION

- A. Prepare the topsoil surface; provide and place sod; dispose of surplus material; and water, fertilize, and protect sod in accordance with Section 816 of the 2012 MDOT Standard Specifications for Construction.

3.3 MAINTENANCE

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for maintenance service.
- B. Maintain sodded areas immediately after placement until grass is well established and exhibits vigorous growing condition.
- C. Water to prevent grass and soil from drying out.
- D. Roll surface if necessary to remove irregularities.]
- E. Weed Control:

1. Control growth of weeds by applying herbicides.
 2. Remedy damage resulting from improper use of herbicides.
- F. Immediately replace sod on areas showing deterioration or bare spots.
- G. Protect sodded areas with warning signs during maintenance period.

END OF SECTION

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SECTION 33 05 61 – CONCRETE MANHOLES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Modular precast concrete manholes and structures with tongue-and-groove joints and masonry transition to cover frame, covers, anchorage, and accessories.
2. Bedding and cover materials.

B. Related Requirements:

1. Section 31 05 13 - Soils for Earthwork: Soils for backfill in trenches.
2. Section 31 05 19.13 - Geotextiles for Earthwork: Filter fabric for subsurface drainage.
3. Section 31 23 16.13 - Trenching: Trenching for manholes, structures, and storm sewer pipe.
4. Section 33 42 00 - Stormwater Conveyance: Piping connections to manholes and structures.

1.2 DEFINITIONS

- A. Bedding: Specialized material placed under manhole prior to installation and subsequent backfill operations.

1.3 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Section 01 20 00 - Price and Payment Procedures: Contract Sum/Price modification procedures.

B. Dr Structure, 48 inch dia:

1. Basis of Measurement: By each drainage structure.
2. Basis of Payment: Includes all necessary labor, material, and equipment necessary for excavating, concrete foundation slab, concrete structure sections, brick masonry transition to cover frame, cover frame and cover, to indicated depth, forming and sealing of pipe inlets and outlets, and backfill to grade.

C. Dr Structure Cover, Type E

1. Basis of Measurement: By each drainage structure cover.
2. Basis of Payment: Includes all necessary labor, material, and equipment necessary for the placement of a drainage structure cover to the correct grade.

1.4 REFERENCE STANDARDS

A. American Association of State Highway Transportation Officials:

1. AASHTO M91 - Standard Specification for Sewer and Manhole Brick (Made from Clay or Shale).
2. AASHTO M288 - Standard Specification for Geotextile Specification for Highway Applications.
3. AASHTO M306 - Standard Specification for Drainage, Sewer, Utility, and Related Castings.

B. American Concrete Institute:

1. ACI 530/530.1 - Building Code Requirements and Specification for Masonry Structures.

C. ASTM International:

1. ASTM A48/A48M - Standard Specification for Gray Iron Castings.
2. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
3. ASTM C32 - Standard Specification for Sewer and Manhole Brick (Made from Clay or Shale).
4. ASTM C55 - Standard Specification for Concrete Building Brick.
5. ASTM C361 - Standard Specification for Reinforced Concrete Low-Head Pressure Pipe.
6. ASTM C478 - Standard Specification for Circular Precast Reinforced Concrete Manhole Sections.
7. ASTM C497 - Standard Test Methods for Concrete Pipe, Manhole Sections, or Tile.
8. ASTM C877 - Standard Specification for External Sealing Bands for Concrete Pipe, Manholes, and Precast Box Sections.
9. ASTM C913 - Standard Specification for Precast Concrete Water and Wastewater Structures.
10. ASTM C923 - Standard Specification for Resilient Connectors between Reinforced Concrete Manhole Structures, Pipes, and Laterals.
11. ASTM C990 - Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants.
12. ASTM F593 - Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.
13. ASTM F1554 - Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength.

1.5 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.

1.6 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

- B. Product Data: Submit manufacturer information for manhole covers, component construction, features, configuration, and dimensions.
 - C. Shop Drawings:
 - 1. Indicate structure locations and elevations.
 - 2. Indicate sizes and elevations of penetrations.
 - D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
 - E. Manufacturer Instructions: Submit detailed instructions on installation requirements, including storage and handling procedures.
 - F. Source Quality-Control Submittals: Indicate results of shop tests and inspections.
 - G. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.
 - H. Qualifications Statement:
 - 1. Submit qualifications for manufacturer.
- 1.7 CLOSEOUT SUBMITTALS
- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.
- 1.8 QUALITY ASSURANCE
- A. Perform Work according to Ypsilanti Charter Township, Washtenaw County Water Resources Commissioner, and MDOT standards.
- 1.9 QUALIFICATIONS
- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' experience.
- 1.10 DELIVERY, STORAGE, AND HANDLING
- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
 - B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
 - C. Handling: Comply with precast concrete manufacturer instructions and ASTM C913 for unloading and moving precast manholes and drainage structures.
 - D. Storage:

1. Store materials according to manufacturer instructions.
2. Store precast concrete manholes and drainage structures to prevent damage to Owner's property or other public or private property.
3. Repair property damaged from materials storage.

E. Protection:

1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
2. Provide additional protection according to manufacturer instructions.

1.11 AMBIENT CONDITIONS

- A. Section 01 50 00 - Temporary Facilities and Controls: Requirements for ambient condition control facilities for product storage and installation.
- B. Cold Weather Requirements: Comply with ACI 530/530.1.

1.12 EXISTING CONDITIONS

- A. Field Measurements:
 1. Verify field measurements prior to fabrication.
 2. Indicate field measurements on Shop Drawings.

1.13 WARRANTY

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for warranties.
- B. Furnish five-year manufacturer's warranty for concrete manholes.

PART 2 - PRODUCTS

2.1 CONCRETE AND MASONRY MANHOLES

- A. Manufacturers:
 1. Northern Concrete Pipe
 2. Substitutions: As specified in Section 01 60 00 - Product Requirements.
- B. Manhole Sections
 1. Materials:
 - a. Reinforced Precast Concrete: Comply with ASTM C478 (C478M).
 - b. Gaskets: Comply with ASTM C923 (C923M).

2. Joints:
- a. Comply with ASTM C913.
 - b. Maximum Leakage: 0.025 gal. (94.6 mL) per hour per foot (0.3 m) of joint at 3 feet (91 cm) of head.
- C. Mortar and Grout:
1. Mortar:
 - a. As specified in Section 04 05 13 - Masonry Mortaring.
 - b. Type: S.
- D. Shaft and Concentric Cone Top Sections:
1. Pipe Sections: Reinforced precast concrete.
 2. Joints:
 - a. Lipped male/female.
- E. Shape: Cylindrical.
- F. Clear Inside Dimensions:
1. As indicated on Drawings.
- G. Design Depth:
1. As indicated on Drawings.
- H. Clear Cover Opening:
1. As indicated on Drawings.
- I. Pipe Entry: Furnish openings as required.
- J. Structure Joint Gaskets:
1. Comply with ASTM C361 (C361M).
 2. Material: Rubber.

2.2 FRAMES AND COVERS

- A. Manufacturers:
1. East Jordan Iron Works.
 2. Substitutions: As specified in Section 01 60 00 - Product Requirements.
- B. Description:
1. Meets requirements of MDOT Standard R-10-D.

2.3 RISER RINGS

A. Manufacturers:

1. Northern Concrete Pipe.
2. Substitutions: As specified in Section 01 60 00 - Product Requirements.

B. Riser Rings:

1. Thickness of 4 to 6 Inches (100 to 150 mm):
 - a. Precast concrete.
 - b. Comply with ASTM C478 (C478M).
2. Thickness Less Than 4 Inches (100 mm):
 - a. Cast iron.
 - b. Comply with AASHTO M306.
3. Rubber Seal Wraps:
 - a. Wraps and Band Widths: Comply with ASTM C877 (C877M), Type III.
 - b. Cone/Riser Ring Joint: Minimum 3-inch (75-mm) overlap.
 - c. Frame/Riser Ring Joint: 2-inch (50-mm) overlap.
 - d. Additional Bands: Overlap upper band by 2 inches (50 mm).

2.4 MATERIALS

A. Cover and Bedding:

1. Bedding: MDOT Class II granular material or 6A
2. Cover: MDOT Class II granular material

2.5 ACCESSORIES

A. Foundation Slab:

1. Pre-Cast Concrete
2. Top Surface: Level.

B. Joint Sealant: Comply with ASTM C990 (C990M).

C. Geotextile Filter Fabric:

1. Description:
 - a. Non-biodegradable.
 - b. Nonwoven.
2. Comply with AASHTO M288.

2.6 SOURCE QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for testing, inspection, and analysis.
- B. Provide shop inspection and testing of completed assembly.
- C. Certificate of Compliance:
 - 1. If manufacturer is approved by authorities having jurisdiction, submit certificate of compliance indicating Work performed at manufacturer's facility conforms to Contract Documents.
 - 2. Specified shop tests are not required for Work performed by approved manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation examination.
- B. Verify that items provided by other Sections of Work are properly sized and located.
- C. Verify that built-in items are in proper location and are ready for roughing into Work.
- D. Verify that excavation base is ready to receive Work and excavations and that dimensions and elevations are as indicated on Drawings.

3.2 PREPARATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation preparation.
- B. Mark each precast structure by indentation or waterproof paint showing date of manufacture, manufacturer, and identifying symbols and numbers as indicated on Drawings to indicate its intended use.
- C. Coordinate placement of inlet and outlet pipe or duct sleeves as required by other Sections.
- D. Do not install manholes and structures where Site conditions induce loads exceeding structural capacity of manholes or structures.
- E. Inspect precast concrete manholes and structures immediately prior to placement in excavation to verify that they are internally clean and free from damage; remove and replace damaged units.

3.3 INSTALLATION

- A. Conduct operations not to interfere with, interrupt, damage, destroy, or endanger integrity of surface structures or utilities in immediate or adjacent areas.
- B. Correct over-excavation with coarse aggregate.
- C. Remove large stones or other hard matter impeding consistent backfilling or compaction.
- D. Protect manhole from damage or displacement while backfilling operation is in progress.
- E. Excavating:
 - 1. As specified in Section 31 23 16 - Excavation and in indicated locations and depths.
 - 2. Provide clearance around sidewalls of manhole or structure for construction operations, granular backfill, and placement of geotextile filter fabric.
 - 3. If ground water is encountered, prevent accumulation of water in excavations; place manhole or structure in dry trench.
 - 4. Where possibility exists of watertight manhole or structure becoming buoyant in flooded excavation, anchor manhole or structure to avoid flotation as approved by Architect/Engineer.
- F. Base and Alignment:
 - 1. Install manholes supported at proper grade and alignment on 6A stone.
 - 2. Grout base of shaft sections to achieve slope to exit piping, trowel smooth, and contour to form continuous drainage channel.
 - 3. Form and place manhole or structure cylinders plumb and level, to correct dimensions and elevations.
- G. Backfilling: As specified in Section 31 05 13 - Soils for Earthwork.
- H. Precast Concrete Manholes:
 - 1. Lift precast components at lifting points designated by manufacturer.
 - 2. When lowering manholes into excavations and joining pipe to units, take precautions to ensure that interior of pipeline and structure remains clean.
 - 3. Assembly:
 - a. Assemble multisection manholes and structures by lowering each section into excavation.
 - b. Install rubber gasket joints between precast sections according to manufacturer recommendations.
 - c. Lower, set level, and firmly position base section before placing additional sections.
 - 4. Remove foreign materials from joint surfaces and verify that sealing materials are placed properly.
 - 5. Maintain alignment between sections by using guide devices affixed to lower section.
 - 6. Joint sealing materials may be installed on Site or at manufacturer's plant.
 - 7. Verify that installed manholes meet required alignment and grade.

8. Remove knockouts or cut structure to receive piping without creating openings larger than required to receive pipe; fill annular spaces with mortar.
9. Cut pipe flush with interior of structure.
10. Shape inverts through manhole as indicated on Drawings.

I. Castings:

1. Set frames using mortar and masonry as indicated on Drawings.
2. Install radially laid concrete brick with 1/4-inch- (6.35-mm-) thick, vertical joints at inside perimeter.
3. Lay concrete brick in full bed of mortar and completely fill joints.
4. If more than one course of concrete brick is required, stagger vertical joints.
5. Set frame and cover 2 inches (50.8 mm) above finished grade for manholes and other structures with covers located within unpaved areas to allow area to be graded away from cover beginning 1 inch (25.4 mm) below top surface of frame.

3.4 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for inspecting and testing.
- B. Equipment Acceptance: Adjust, repair, modify, or replace components failing to perform as specified and rerun tests.

END OF SECTION

SECTION 33 42 00 - STORMWATER CONVEYANCE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Stormwater drainage piping.
2. Manholes.
3. Catch basins.
4. Cleanouts.
5. Pile support systems.
6. Concrete encasement and cradles.
7. Bedding and cover materials.

B. Related Requirements:

1. Section 31 05 13 - Soils for Earthwork: Soils for backfill in trenches.
2. Section 31 05 19.13 - Geotextiles for Earthwork: Geotextile filter fabric.
3. Section 31 23 16.13 - Trenching: Execution requirements for trenching as required by this Section.
4. Section 33 05 61 - Concrete Manholes: Manholes and accessories as required by this Section.
5. Section 31 25 00 - Erosion and Sediment Controls: Erosion and sedimentation control devices.

1.2 DEFINITIONS

- A. ABS: Acrylonitrile butadiene styrene.

1.3 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Section 01 20 00 - Price and Payment Procedures: Contract Sum/Price modification procedures.

B. Sewer, CJ II, 15 in, Tr Det A:

1. Basis of Measurement: By linear foot.
2. Basis of Payment: Includes all necessary labor, material, and equipment for excavating, removing soft subsoil, bedding and fill, geotextile fabric joint wrap, pipe and fittings, accessories, and connecting to structures as necessary.

C. Culv End Sect, 15 inch:

1. Basis of Measurement: By each.
2. Basis of Payment: Includes all necessary labor, material, and equipment for excavating, bedding and fill, unit installation, and connecting to sewer piping.

1.4 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials:

1. AASHTO M036 - Standard Specification for Corrugated Steel Pipe, Metallic-Coated, for Sewers and Drains.
2. AASHTO M196 - Standard Specification for Corrugated Aluminum Pipe for Sewers and Drains.
3. AASHTO M218 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized), for Corrugated Steel Pipe.
4. AASHTO M245 - Standard Specification for Corrugated Steel Pipe, Polymer-Precoated, for Sewers and Drains.
5. AASHTO M246 - Standard Specification for Steel Sheet, Metallic-Coated and Polymer-Precoated, for Corrugated Steel Pipe.
6. AASHTO M252 - Standard Specification for Corrugated Polyethylene Drainage Pipe.
7. AASHTO M274 - Standard Specification for Steel Sheet, Aluminum-Coated (Type 2), for Corrugated Steel Pipe.
8. AASHTO M288 - Standard Specification for Geotextile Specification for Highway Applications.
9. AASHTO M289 - Standard Specification for Aluminum-Zinc Alloy Coated Sheet Steel for Corrugated Steel Pipe.
10. AASHTO M294 - Standard Specification for Corrugated Polyethylene Pipe, 300- to 1500-mm (12- to 60-in.) Diameter.
11. AASHTO T241 - Standard Method of Test for Helical Continuously Welded Seam Corrugated Steel Pipe.
12. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

B. ASTM International:

1. ASTM A74 - Standard Specification for Cast Iron Soil Pipe and Fittings.
2. ASTM A123/ (A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products).
3. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
4. ASTM A746 - Standard Specification for Ductile Iron Gravity Sewer Pipe.
5. ASTM B745/B745M - Standard Specification for Corrugated Aluminum Pipe for Sewers and Drains.
6. ASTM C14 - Standard Specification for Nonreinforced Concrete Sewer, Storm Drain, and Culvert Pipe.
7. ASTM C76 - Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
8. ASTM C443 - Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.
9. ASTM C564 - Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings.
10. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
11. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).

12. ASTM D2235 - Standard Specification for Solvent Cement for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe and Fittings.
13. ASTM D2321 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
14. ASTM D2564 - Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems.
15. ASTM D2680 - Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) and Poly(Vinyl Chloride) (PVC) Composite Sewer Piping.
16. ASTM D2729 - Standard Specification for Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
17. ASTM D2855 - Standard Practice for the Two-Step (Primer and Solvent Cement) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets.
18. ASTM D3034 - Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
19. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
20. ASTM F405 - Standard Specification for Corrugated Polyethylene (PE) Pipe and Fittings.
21. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
22. ASTM F667/F667M - Standard Specification for 3 through 24 in. Corrugated Polyethylene Pipe and Fittings.

1.5 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit manufacturer information describing pipe, and pipe accessories.
- C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- D. Manufacturer Instructions: Submit special procedures required to install specified products.
- E. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.
- F. Qualifications Statement:
 1. Submit qualifications for manufacturer.

1.6 QUALITY ASSURANCE

- A. Perform Work according to Ypsilanti Charter Township, Washtenaw County Water Resources Commissioner, and MDOT standards.

1.7 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' experience.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- C. Store materials according to manufacturer instructions.
- D. Protection:
 - 1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
 - 2. Provide additional protection according to manufacturer instructions.

1.9 EXISTING CONDITIONS

- A. Field Measurements:
 - 1. Verify field measurements prior to fabrication.
 - 2. Indicate field measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 STORM DRAINAGE PIPING.

- A. Reinforced Concrete Piping:
 - 1. Pipe:
 - a. Comply with ASTM C76 (C76M), Class II, with Wall Type A.
 - b. Reinforcement: Mesh.
 - c. Inside Nominal Diameter: 48 inches
 - d. End Connections: Bell and spigot
 - 2. Fittings: Reinforced concrete.
 - 3. Joints:
 - a. Comply with ASTM C443 (C443M).
 - b. Gaskets: Rubber, compression.
 - 4. Flared End Sections:
 - a. Comply with ASTM C76-11 Specifications.
 - b. Manufactured by:
 - 1) Northern Concrete Pipe
 - 2) As approved by Engineer

2.2 MATERIALS

- A. Bedding and Cover: As specified in Section 31 23 16.13 – Trenching and 310513 – Soils for Earthwork.

2.3 ACCESSORIES

- A. Geotextile Filter Fabric:
 - 1. Comply with AASHTO M288 for subsurface drainage.
 - 2. Type:
 - a. Non-biodegradable.
 - b. Non-woven.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation examination.
- B. Verify that trench cut is ready to receive Work of this Section.
- C. Verify that excavations, dimensions, and elevations are as indicated on Drawings.

3.2 PREPARATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation preparation.
- B. Correct over-excavation with MDOT 6A stone.
- C. Remove large stones and other hard matter that could damage piping or impede consistent backfilling or compaction.

3.3 INSTALLATION

- A. Excavation and Bedding:
 - 1. Excavate trench as specified in Section 31 23 16.13 - Trenching.
- B. Piping:
 - 1. Place pipe on minimum 3-inch-deep bed of Class II granular material or 6A stone.
 - 2. Install top cover to minimum compacted thickness of 12 inches (300 mm), and compact to 95 percent maximum density.

3. Manholes: As specified in Section 33 05 61 - Concrete Manholes.
4. Installation Standards: Install Work according to Ypsilanti Charter Township, Washtenaw Water Resources Commissioner, and MDOT standards.

C. Catch Basins and Cleanouts:

1. Form bottom of excavation clean and smooth, and to indicated elevation.
2. Form and place cast-in-place concrete base pad, with provision for storm sewer pipe end sections.
3. Level top surface of base pad.
4. Sleeve concrete shaft sections to receive storm sewer pipe sections.
5. Establish elevations and pipe inverts for inlets and outlets as indicated on Drawings.
6. Mount lid and frame level in grout, secured to top section to indicated elevation.

3.4 TOLERANCES

- A. Section 01 40 00 - Quality Requirements: Requirements for tolerances.
- B. Maximum Variation from Indicated Pipe Slope: 1/8 inch (3 mm) in 10 feet (3 m).

3.5 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for inspecting and testing.
- B. Request inspection by Architect/Engineer prior to and immediately after placing aggregate cover over pipe.
- C. Testing:
 1. Compaction Test:
 - a. Comply with MDOT density testing standards.
 - b. Testing Frequency: Engineer's Discretion.
 2. Manholes: As specified in Section 33 05 61 - Concrete Manholes.
 3. If tests indicate that Work does not meet specified requirements, remove Work, replace, and retest.

3.6 PROTECTION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for protecting finished Work.
- B. Protect pipe and aggregate cover from damage or displacement until backfilling operation is in progress.

END OF SECTION

Appendix A

Ypsilanti Charter Township

Living Wage Ordinance

DRAFT - FOR REVIEW

Sec. 2-201. - Living wage.

(a) *Definitions.* For the purposes of this section, the following definitions shall apply:

Contractor/vendor is a person or entity that has a contract with the township primarily for the furnishing of services (as opposed to the purchasing or leasing of goods or property) where the total amount of the contract or contracts exceeds \$10,000 for any 12-month period, including any subcontractors of such contractor:

Grantee is the recipient of any financial assistance from the township in the form of any federal or state grant program administered by the township, revenue bond financing, tax increment financing, tax abatement, tax credit, director grant, or any other form of financial assistance, including any contractors, subcontractors, or leaseholders of the grantee at the subsidized site(s), that exceeds \$20,000 for any 12-month period.

Beneficiary means any person or entity that is a recipient of a contract or financial assistance.

Covered employer means a beneficiary of a service contract or a grantee for financial assistance that has not been granted an exemption from this section pursuant to subsection (f) of this section.

Covered employee means a person employed by a covered employer receiving assistance; provided, however, that persons who are employed pursuant to federal, state or local laws relating to prevailing wages shall be exempt from this section.

Employee means a person within the meaning of Section 161 of the Worker's Disability Compensation Act of 1969, being Section 418.161 of the Compiled Laws of 1979.

Living wage has the meaning stated in subsection (c).

Person means one or more of the following or their agents, employees, servants, representatives, and legal representatives; individuals, corporations, partnerships, joint ventures, associations, labor organizations, educational institutions, mutual companies, joint stock companies, trusts, unincorporated associations, trustees, trustees in bankruptcy, receivers, fiduciaries, and all other entities recognized at law by this State.

(b) *Applicability.* This section shall apply to any "person" as defined herein that employs or contracts with five or more individuals. Provided, however, that a nonprofit contractor or grantee shall have at least ten or more employees and a contract or grant that exceeds \$20,000 in any 12-month period in order for this section to apply to it.

This section shall apply to any grant, contract or subcontract awarded or entered into after the effective date of the section. After the effective date of the section, entering into an agreement for an extension or renewal of any contract or grant as defined herein shall be conditioned upon compliance with this section.

(c) *Living wages required.*

- (1) Every contractor or grantee, as defined in subsection (a), shall pay its covered employees a living wage as established in this section.
 - a. For an entity that provides employee health care to its employees, the living wage shall be \$8.50 an hour.
 - b. For an entity that does not provide health care to its employees, the living wage shall be \$10.00 an hour.
- (2) In order to qualify to pay the living wage rate for entities providing employee health care under subsection (c)(1)a, the entity shall furnish proof of said coverage to the township human resources

department.

- (3) The living wage established in this section shall be reviewed by the township no later than March 1, 2001 and every two years thereafter.

(d) *Employees covered.*

- (1) Any entity receiving a contract, as defined in subsection (a), shall pay those employees performing work on the contract a living wage as defined herein.
- (2) Any entity receiving a grant, as defined in subsection (a), shall pay all employees (or persons contracted for employment) working in (or whose base of employment is in) the work place that is receiving or benefiting from such grant a living wage as defined herein.

(e) *Enforcement.*

- (1) The township shall require, as a condition of any contract or grant covered by this section, that the affected entity agree to the payment of a living wage as a condition of entering into or renewal of said contract or grant. The affected entity shall agree to post a notice regarding the applicability of this section in any work place or other location in which employees or other persons contracted for employment are working. The affected entity shall agree to provide payroll records or other documentation, as deemed necessary by the township, to the township's human resource department within ten business days from receipt of the township's request.
- (2) Any employee or person contracted for employment by an affected entity who is denied payment of the applicable living wage shall have the right to file a claim for relief to enforce any rights granted under this section in a court of law. The court shall award wage restitution, interest, attorneys fees and costs, in the event the employee prevails in the action.
- (3) The township board shall have the right to modify, terminate, and/or seek specific performance of any contract or grant with an affected entity from any court of competent jurisdiction, if it is determined after a public hearing, that based upon the preponderance of evidence, the affected entity has not complied with this section.

(f) *Exemptions.*

- (1) The township board, after conducting a public hearing, may grant a partial or complete exemption from the requirements of this section, if it determines one of the following:
 - a. The application of the section would violate federal, state or local law(s);
 - b. The application of the section would cause economic harm to a nonprofit contractor or grantee in a fashion that would result in the harm created by the application of the section outweighing the benefits of applying the section.

(g) *Other provisions.*

- (1) No affected entity shall reduce the compensation, wages, fringe benefits, or leave available to any covered employee or person contracted for employment in order to pay the living wage required by this section.
- (2) Nothing in this section shall be construed to conflict with, interfere with, and/or supersede any provision of a collective bargaining agreement with any union representing covered employees. This section shall not be applicable to any "seasonal employee" who is hired pursuant to a provision of a collective bargaining agreement between an employer and any union.
- (3) No employee covered by a federal, state, or local law requiring the payment of prevailing wages shall be covered by this section.

- (4) This ordinance shall not be applicable to the establishment and/or continuation of the following if develop high school and/or college students:
- a. A bona fide training program;
 - b. A youth employment program;
 - c. A work study program.

(Code 1975, § 13-1; Ord. No. 99-213, §§ 2—8, 5-4-99)

DRAFT - FOR REVIEW

Appendix B

Ypsilanti Charter Township

Prevailing Wage Ordinance

DRAFT - FOR REVIEW

AN ORDINANCE ESTABLISHING BIDDING
PROCEDURES AND CONTRACTING FOR CONSTRUCTION AND/OR
REMODELING OF ANY BUILDING OR PART THEREOF
OWNED BY THE TOWNSHIP OF YPSILANTI

SECTION 1. This ordinance is ordained for the purpose of establishing a procedure to insure that Contractors performing services on Ypsilanti Township buildings, parks and/or water and sewer lines shall pay employees in accordance with the prevailing wage rates.

SECTION 2. No contract, agreement, understanding or other arrangement, whether oral or written for the construction and/or substantial remodeling of any building or part thereof, for or on the behalf of or owned by the Township of Ypsilanti, involving craftsmen, mechanics and laborers employed directly upon the site of work shall be entered into, approved or executed unless such contract, agreement, understanding or arrangement shall provide and require that all craftsmen, mechanics and laborers so employed shall receive at least the prevailing wages and fringe benefits of the Building Trades Department for corresponding classes of craftsmen, mechanics and laborers as determined and published by the Davis-Bacon Division of the United States Department of Labor for the Washtenaw County area.

SECTION 3. Such contract, agreement, understanding or arrangements shall provide that all sub-contracts entered into by the Contractor shall contain the provisions set forth above with respect to the contractor and all such contracts, agreements, understandings or arrangements shall provide that all contractors and sub-contractors engaged in the performances of service or work for the Township to which this section of this Ordinance applies, shall at the request of the Township, furnish proof satisfactory to the Township that the foregoing

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ATTORNEYS AND
COUNSELORS AT LAW
3040 FACETS RD.
YPSILANTI, MICH. 48197
(313) 485-0800

HENRY C. RITCHIE
CLYDE RITCHIE
KALIAN D. LISTON

provisions of such contract or sub-contract are being complied with. It shall be the responsibility of the Township Clerk to, on demand, post at an appropriate place in the Township, Clerk's Office, prevailing wages and fringe benefits that may be, in effect in accordance with the foregoing, and the Township Clerk is directed to see that the requirements of this paragraph of this Ordinance are contained in and complied with in all contracts, agreements, understandings or arrangements for work or services to be performed for the Township in accordance herewith.

SECTION 4. Should any section, clause or phase of this Ordinance be declared by the courts to be invalid, the same shall not affect the validity of the ordinance as a whole, or any part thereof other than the part so declared to be invalid.

SECTION 5. All Ordinances, or parts of ordinances, in conflict with any of the provisions of this ordinance are hereby repealed.

SECTION 6. This Ordinance shall take effect Thirty (30) days after publication in a newspaper of general circulation in Ypsilanti Township.

Anna J. Stepp
Anna J. Stepp
Ypsilanti Township Clerk

I hereby certify that the foregoing Ordinance No. 69 was duly adopted at a Regular Meeting of the Ypsilanti Township Board held on March 5, 1974, at 7200 S. Huron River Drive, Ypsilanti, Michigan.

I further certify that the following Board Members were present: Gagnon, Daniels, Sturza, Branham, Crum and Turner. Absent: Stepp.

The following Board Members voted for adoption of said Ordinance No. 69: Gagnon, Daniels, Sturza, Branham, Crum & Turner.

Opposed: None

Publish-March 9, 1974

Anna J. Stepp
Anna J. Stepp
Ypsilanti Township Clerk

RITCHIE & RITCHIE
ATTORNEYS AND
COUNSELORS AT LAW
3050 PACKARD RD.
YPSILANTI, MICH. 48197
(313) 485-0600

HENRY C. RITCHIE
CLYDE RITCHIE
KALIAN D. LISTON

Legal

PRELIMINARY ESTIMATE OF COST



**LOONFEATHER POINT PARK STORM SEWER REPAIR
YPSILANTI CHARTER TOWNSHIP
WASHTENAW COUNTY, MICHIGAN**

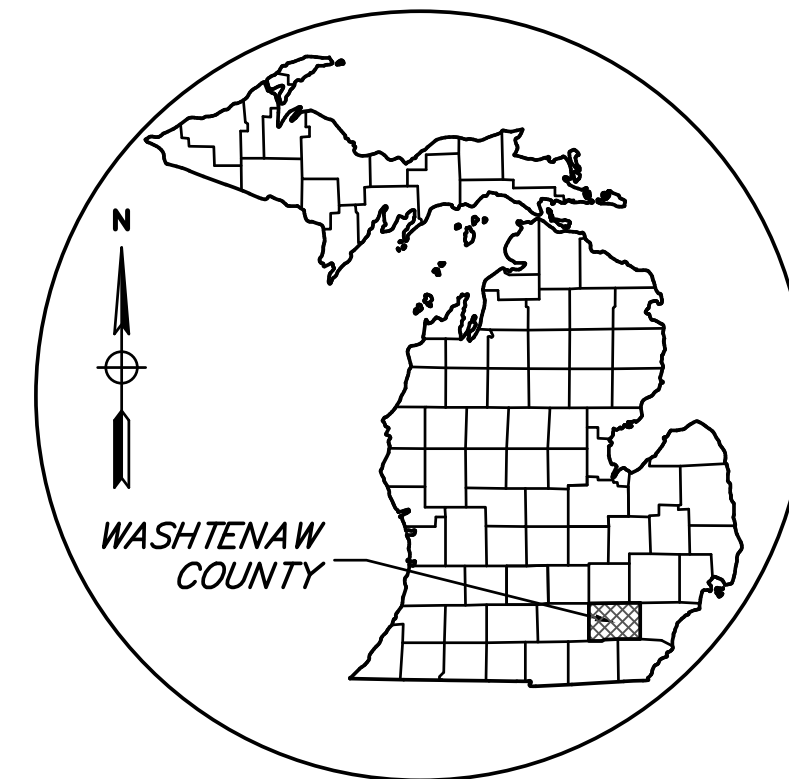
Item No.	Estimated Quantity	Unit	Description	Unit Price	Amount
1.	1	Lump Sum	Mobilization	\$2,000.00	\$2,000.00
2.	1	Lump Sum	Clearing	\$800.00	\$800.00
3.	1	Each	Tree, Rem, 6 inch to 18 inch	\$250.00	\$250.00
4.	182	Lin. Ft.	Sewer, Rem, Less than 24 inch	\$20.00	\$3,640.00
5.	1	Each	Dr Structure, Rem	\$500.00	\$500.00
6.	1	Each	Culv End Sect, 15 inch	\$1,000.00	\$1,000.00
7.	182	Lin. Ft.	Sewer, CI II, 15 in, Tr Det A	\$80.00	\$14,560.00
8.	1	Each	Dr Structure Cover, Type E	\$440.00	\$440.00
9.	1	Each	Dr Structure, 48 inch dia	\$3,000.00	\$3,000.00
10.	10	Sq. Yd	Riprap, Plain	\$80.00	\$800.00
11.	900	Sq. Yd.	Sodding	\$15.00	\$13,500.00
12.	100	Lin. Feet	Erosion Control, Silt Fence	\$2.50	\$250.00
13.	50	Lin. Feet	Erosion Control, Turbidity Curtain	\$20.00	\$1,000.00
Sub-Total - Construction Cost					<u>\$41,740.00</u>
Contingencies (~20%)					\$8,260.00
TOTAL PRELIMINARY ESTIMATE OF COST					\$50,000.00

Spicer Group, Inc.
April 20, 2020

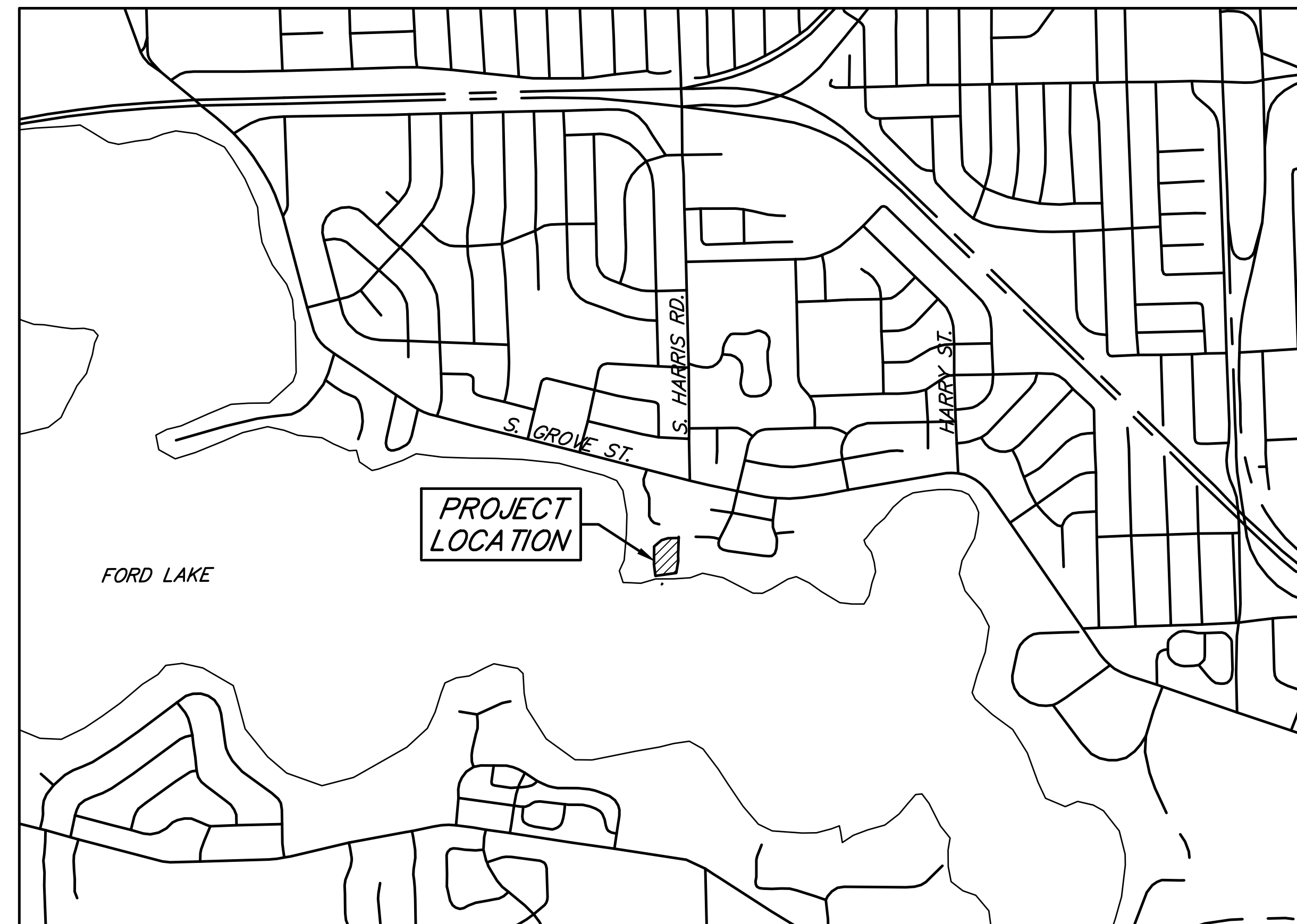
LOONFEATHER POINT PARK STORM SEWER REPAIR

CHARTER TOWNSHIP OF YPSILANTI

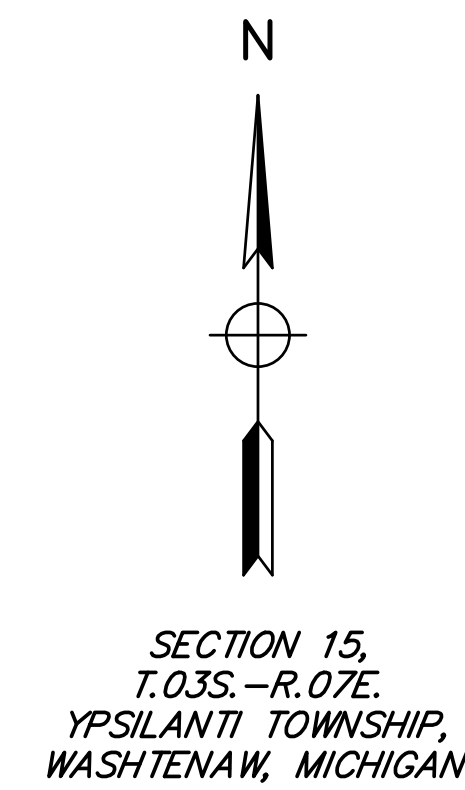
PLAN INDEX		
FILE NO.	DESCRIPTION	NO.
DR-5089-01	COVER SHEET	1
DR-5089-02	GENERAL NOTES	2
DR-5089-03	PLAN	3
DR-5089-04	S.E.S.C. MEASURES	4
DR-5089-05	DETAILS	5



AREA MAP
NOT TO SCALE



LOCATION MAP
1" = 1000'



BY	MARK	REVISIONS	DATE
THE WORK REPRESENTED BY THIS DRAWING WAS DESIGNED BY THE ENGINEER FOR THIS SPECIFIC APPLICATION AND SPECIFIC LOCATION DESCRIBED HEREON IN ACCORDANCE WITH THE CONDITIONS PREVALENT AT THE TIME THE DESIGN WAS DONE. THE ENGINEER DOES NOT GUARANTEE AND WILL NOT BE LIABLE FOR ANY OTHER LOCATION, CONDITION, DESIGN OR PURPOSE.			
LOONFEATHER POINT PARK STORM SEWER			
COVER SHEET			
		DUNDEE OFFICE 125 Helle Blvd., Suite 2 Dundee, MI 48131 Tel: 734-823-3308 www.SpicerGroup.com	
DE. BY: <i>KJW</i> CH. BY: <i>JEO</i> DR. BY: <i>BH</i> APP. BY: <i>KJW</i>		PROJECT NO. 128240SG2020	
STDS.		SHEET 1 OF 5	
DATE SCALE		APRIL 2020	
FILE NO.		DR-5089-01	
			DR 01

GENERAL NOTES

NO WORK SHALL BE PERFORMED BEFORE 7:00 AM OR AFTER 7:00 PM MONDAY THROUGH SATURDAY. NO WORK SHALL HAPPEN ON SUNDAYS OR HOLIDAYS. UNLESS AUTHORIZED BY THE OWNER.

CONTRACTOR SHALL NOTIFY ENGINEER 48 HOURS PRIOR TO START OF CONSTRUCTION, CONSTRUCTION STAKING AND INSPECTION.

CONTRACTOR SHALL MAINTAIN ACCESS FOR MAIL DELIVERY AND GARBAGE PICKUP AT ALL PARCELS. IF THESE SERVICES CANNOT BE PERFORMED CONTRACTOR IS RESPONSIBLE FOR TAKING THE NECESSARY MEASURES TO CARRY THEM OUT.

COORDINATE DRIVE CLOSURES AND MAIL BOX RELOCATION WITH LANDOWNERS A MINIMUM OF ONE DAY IN ADVANCE.

CONTRACTOR TO PROVIDE DUST CONTROL AND SWEEP ROADS DAILY.

ALL EXCAVATED MATERIAL NOT TO BE REUSED OR DISPOSED OF ON SITE SHALL BE REMOVED FROM SITE. THE CONTRACTOR IS RESPONSIBLE FOR DISPOSING MATERIALS ACCORDING TO LOCAL AND STATE REQUIREMENTS.

UNDERGROUND UTILITIES/MISS DIG
FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 174, 2013, THE CONTRACTOR SHALL DIAL 1-800-482-7171 OR 811 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 BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

THE EXISTING UTILITIES ON THESE DRAWINGS HAVE BEEN SHOWN ACCORDING TO THE BEST AVAILABLE INFORMATION. CONTRACTOR SHALL FIELD LOCATE ALL UTILITIES PRIOR TO BEGINNING CONSTRUCTION AND SHALL NOTIFY THE ENGINEER AS TO WHERE POSSIBLE CONFLICT EXISTS.

ALL CONSTRUCTION UNDER EXISTING UTILITIES, INCLUDING HOUSE SERVICES, SHALL BE COMPLETELY BACKFILLED WITH SAND, IN 12" LAYERS, AND COMPACTED TO NOT LESS THAN 95% OF THE MAXIMUM UNIT WEIGHT.

ANY UTILITIES ENCOUNTERED DURING CONSTRUCTION SHALL BE SUPPORTED, PER THE SPECIFICATIONS OF THE INDIVIDUAL UTILITY COMPANY CLAIMING OWNERSHIP OF THE UTILITY.

SOIL EROSION AND SEDIMENTATION CONTROL MEASURES
APPROPRIATE SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO EARTH-DISTURBING ACTIVITIES. PLACE TURF ESTABLISHMENT ITEMS AS SOON AS POSSIBLE ON POTENTIAL ERODABLE SLOPES AS DIRECTED BY OWNER. CRITICAL DITCH GRADES SHALL BE PROTECTED WITH EITHER SOG OR SEED/MULCH OR MULCH BLANKET AS DIRECTED BY OWNER.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT SOIL EROSION AND SEDIMENTATION CONTROL MEASURES ARE IN PLACE AND MAINTAINED UNTIL THE CONTRACT HAS BEEN COMPLETED AND ACCEPTED. MEASURES SHALL ONLY BE PAID FOR ONCE.

ALL CATCHBASINS AND SEDIMENTATION TRAP/BASIN SHALL BE CLEANED OUT UPON COMPLETION OF THE PROJECT.

CONTRACTOR SHALL CONFORM TO SOIL EROSION AND SEDIMENTATION CONTROL ACT, PART 91 OF ACT 451 OF 1994.

PROPERTY OWNERS
PROPERTY OWNERS' NAMES, WHERE SHOWN, ARE FOR INFORMATION ONLY, AND THEIR ACCURACY IS NOT GUARANTEED.

ADJUSTING MONUMENT BOXES
ALL GOVERNMENT CORNERS ON THIS PROJECT SHALL BE PRESERVED, WHETHER SHOWN OR NOT. IT MAY BE NECESSARY TO PLACE OR ADJUST MONUMENT BOXES, AS REQUIRED.

PERMITS
PRIOR TO COMMENCING CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED BY THE APPROPRIATE AGENCIES.

CONSTRUCTION PROCEDURES SHALL CONFORM TO THE REQUIREMENTS OF THE APPROPRIATE AGENCIES.

CONTACTS

YPSILANTI CHARTER TOWNSHIP
ATT: MICHAEL HOFFMEISTER
7200 S. HURON RIVER DR.
YPSILANTI, MI 48197
PHONE: (734) 484-4700

SPICER GROUP
ATT: KEVIN J. WILKS
125 HELLE BLVD #2,
DUNDEE, MI 48131
PHONE: (734) 823-3308

DTE GAS DISTRIBUTION
ATT: CHRISTOPHER C. PORTER
ONE ENERGY PLAZA-WCB-1710, DETROIT,
MI 48226
PHONE: (313) 235-5111

TRANSCANADA/ANR PIPELINE
ATT: KAREN MACELEWSKI
700 LOUISIANA ST.,
HOUSTON, TX 77002

DETROIT EDISON
ATT: SARA KIPP
ONE ENERGY PLAZA, 518 SB,
DETROIT, MI 48226
PHONE: (313) 235-5632

YPSILANTI COMMUNITY UTILITIES AUTHORITY
ATT: SCOTT WESTOVER
2777 STATE RD.,
YPSILANTI, MI 48198
PHONE: (734) 484-4600

AT&T
ATT: ANIKA ESTES
54 N. MILL ST., 4TH FLOOR,
PONTIAC, MI 48342
PHONE: (248) 454-2998

COMCAST
ATT: CAMILLA DEAN
27096 OAKMEAD DR.,
PERRYSBURG, OH 43551
419-874-9262 X6012

ABBREVIATIONS

- BC = BACK OF CURB
- BM = BENCH MARK
- C/C = CENTER TO CENTER
- CB = CATCH BASIN
- CL = CENTERLINE
- CJ = CONSTRUCTION JOINT
- CMP = CORRUGATED METAL PIPE
- CSP = CORRUGATED STEEL PIPE
- CONC = CONCRETE
- DI = DUCTILE IRON PIPE
- EF = EACH FACE
- ELEC = ELECTRIC
- EL OR ELEV = ELEVATION
- EOM = EDGE OF METAL
- EOP = EDGE OF PAVEMENT
- EQ/SP = EQUALLY SPACED
- ESMT = EASEMENT
- EW = EACH WAY
- EX OR EXIST = EXISTING
- FF = FINISH FLOOR
- FL = FLOW LINE
- FS = FINISH SURFACE
- FG = FINISH GROUND
- GALV = GALVANIZED
- G = GUTTER
- HDS = HOT DIP GALVANIZED
- HDPE = HIGH DENSITY POLYETHYLENE
- HP = HIGH POINT
- HMA = HOT MIX ASPHALT
- HYD = HYDRANT
- INV = INVERT
- LP = LOW POINT
- OC = ON CENTER
- OH = OVERHEAD
- MH = MANHOLE
- MIN = MINIMUM
- MON = MONUMENT
- NFL = NOT FIELD LOCATED
- NTS = NOT TO SCALE
- PROP = PROPOSED
- PVC = POLYVINYL CHLORIDE PIPE
- RCP = REINFORCED CONCRETE PIPE
- ROW = RIGHT OF WAY
- SAN = SANITARY
- SB = SOIL BORING
- SS = STAINLESS STEEL
- STA = STATION
- STM = STORM
- SWR = SEWER
- T/B = TOP AND BOTTOM
- TC = TOP OF CURB
- TOB = TOP OF BANK
- TOS = TOE OF SLOPE
- TELE = TELEPHONE
- TRW = TOP OF RETAINING WALL
- TW = TOP OF WALK
- UNO = UNLESS NOTED OTHERWISE
- WM = WATER MAIN
- WS = WATER SURFACE ELEVATION

LINE TYPE LEGEND

- — — — — EXISTING ROAD CENTERLINE
- W — — — — EXISTING WATER MAIN
- — — — — EXISTING SANITARY SEWER OR FORCEMAIN
- — — — — EXISTING STORM SEWER
- T — — — — EXISTING TELEPHONE CABLE
- G — — — — EXISTING GAS MAIN
- E — — — — EXISTING ELECTRIC
- — — — — PROPOSED UTILITY
- — — — — EXISTING CURB & GUTTER
- — — — — PROPOSED CURB & GUTTER
- — — — — FENCE LINE
- — — — — OVERHEAD UTILITY
- — — — — RAILROAD TRACKS
- — — — — STATION LINE
- — — — — LIMITS OF RIGHT OF WAY
- — — — — EASEMENT
- — — — — SILT FENCE
- — — — — REVERSE PAN CURB & GUTTER
- — — — — TREE LINE
- — — — — EXISTING CONTOURS
- — — — — PROPOSED CONTOURS

**SYMBOL LEGEND
EXISTING SYMBOLS**

- MANHOLE
- CATCH BASIN
- CURB CATCH BASIN
- FIRE HYDRANT
- GAS VALVE
- WATER VALVE
- TELEPHONE PEDESTAL
- POWER POLE
- TELEPHONE POLE
- POWER AND TELEPHONE POLE
- LIGHT POLE
- GUY ANCHOR AND POLE
- MAIL BOX
- WATER METER
- TELEPHONE MANHOLE
- ELECTRIC MANHOLE
- MONITORING WELL
- HAND HOLE
- TRANSFORMER
- ELECTRICAL PEDESTAL
- BARRIER FREE PARKING
- SPRINKLER
- RAILROAD SIGNAL
- ANTENNA
- SATELLITE DISH
- AIR CONDITIONING UNIT
- SOIL BORING
- BENCH MARK
- FOUND SURVEY CORNER
- SET 1/2" IRON ROD
- 1/4 SECTION CORNER
- BREAK IN LINE
- EXISTING SIGN-1 POST
- EXISTING SIGN-2 POST
- STUMP
- WETLANDS
- PINE
- BUSH
- TREE

PROPOSED SYMBOLS

- — MANHOLE
- — CATCHBASIN
- ⊕ — FIRE HYDRANT
- — WATER VALVE
- ⊗ — BARRIER FREE PARKING
- ⊕ — LIGHT POLES
- DRAINAGE FLOW
- 600.00 LABEL — SPOT ELEVATION LABELS
- = GUTTER
- TW = WALK
- TC = TOP OF CURB
- FS = FINISH SURFACE

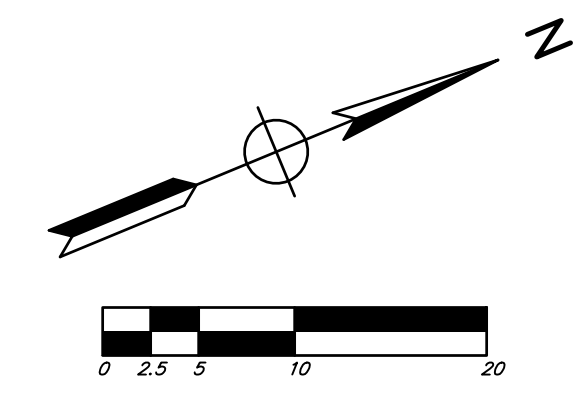
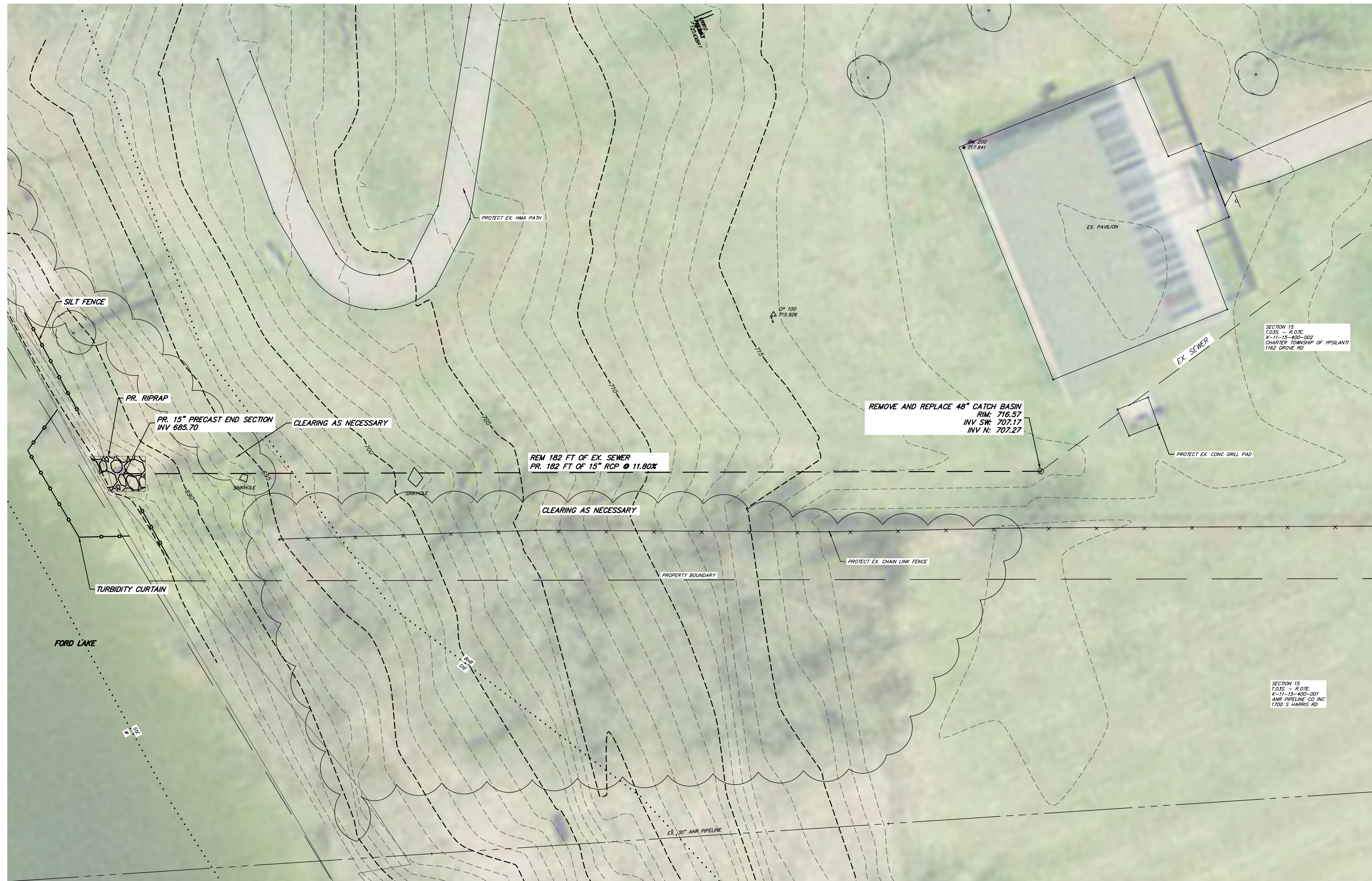
BY	MARK	REVISIONS	DATE
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LOONFEATHER POINT PARK STORM SEWER

GENERAL NOTES

Spicer Group
DUNDEE OFFICE
125 Helle Blvd, Suite 2
Dundee, MI 48131
Tel: 734-823-3308
www.SpicerGroup.com

DE. BY: <i>KJW</i>	CH. BY: <i>JEO</i>	PROJECT NO.
DR. BY: <i>BH</i>	APP. BY: <i>KJW</i>	128240SG2020
STDS.	SHEET 2 OF 5	DR
DATE SCALE	APRIL 2020	FILE NO. DR-5089-02
		02

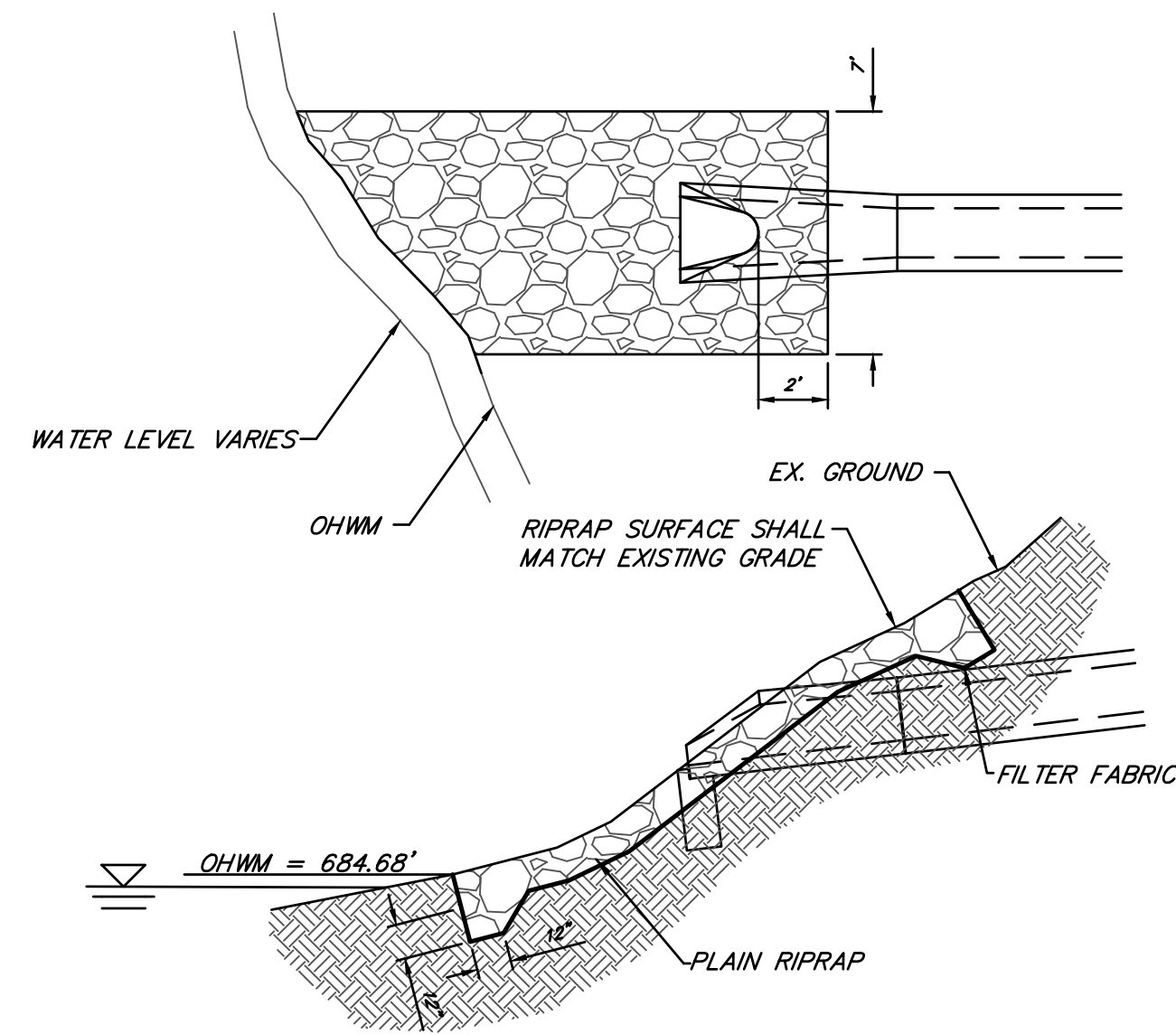


OHMM = 684.68'
RECORDED APRIL 20, 2020

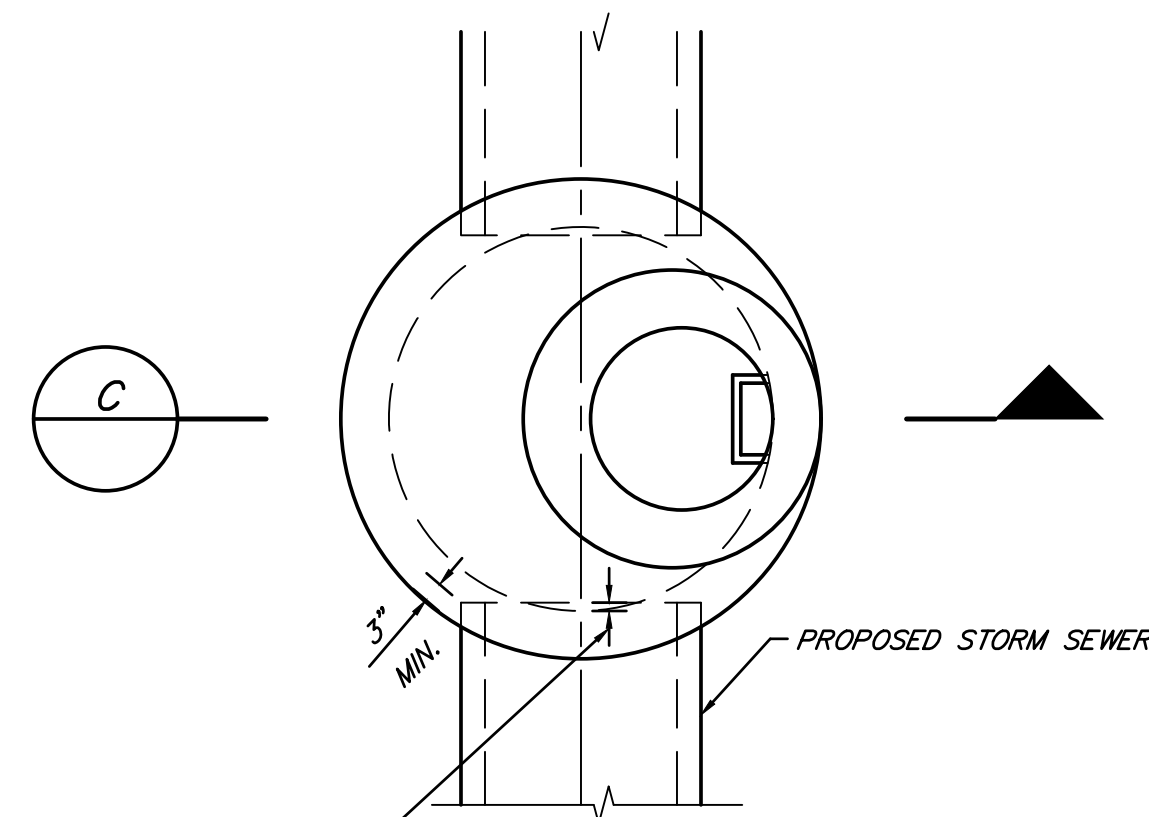
..... USGS SOIL TYPE BOUNDARY

BENCH MARKS
 BM #200 - N: 263093.9370 E: 13335557.8880
 ANCHOR BOLT @ SW CORNER OF PAVILION
 ELEV. 717.84
 CP #100 - N: 263046.2290 E: 13335574.1010
 CIR ±50' SOUTH OF @ PAVILION
 ELEV. 715.93

BY	MARK	REVISIONS	DATE
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LOONFEATHER POINT PARK STORM SEWER			
PLAN			
		<small>DUNDEE OFFICE 125 Helle Blvd., Suite 2 Dundee, MI 48131 Tel: 734-923-3308 www.SpicerGroup.com</small>	
DE. BY: <i>KJW</i>	CH. BY: <i>JEO</i>	PROJECT NO. 128240SG2020	
DR. BY: <i>BH</i>	APP. BY: <i>KJW</i>		
STDS.	SHEET 3 OF 5	DR	
DATE SCALE	APRIL 2020 1" = 10'	FILE NO. DR-5089-03	03



OUTLET RIPRAP DETAIL
NOT TO SCALE

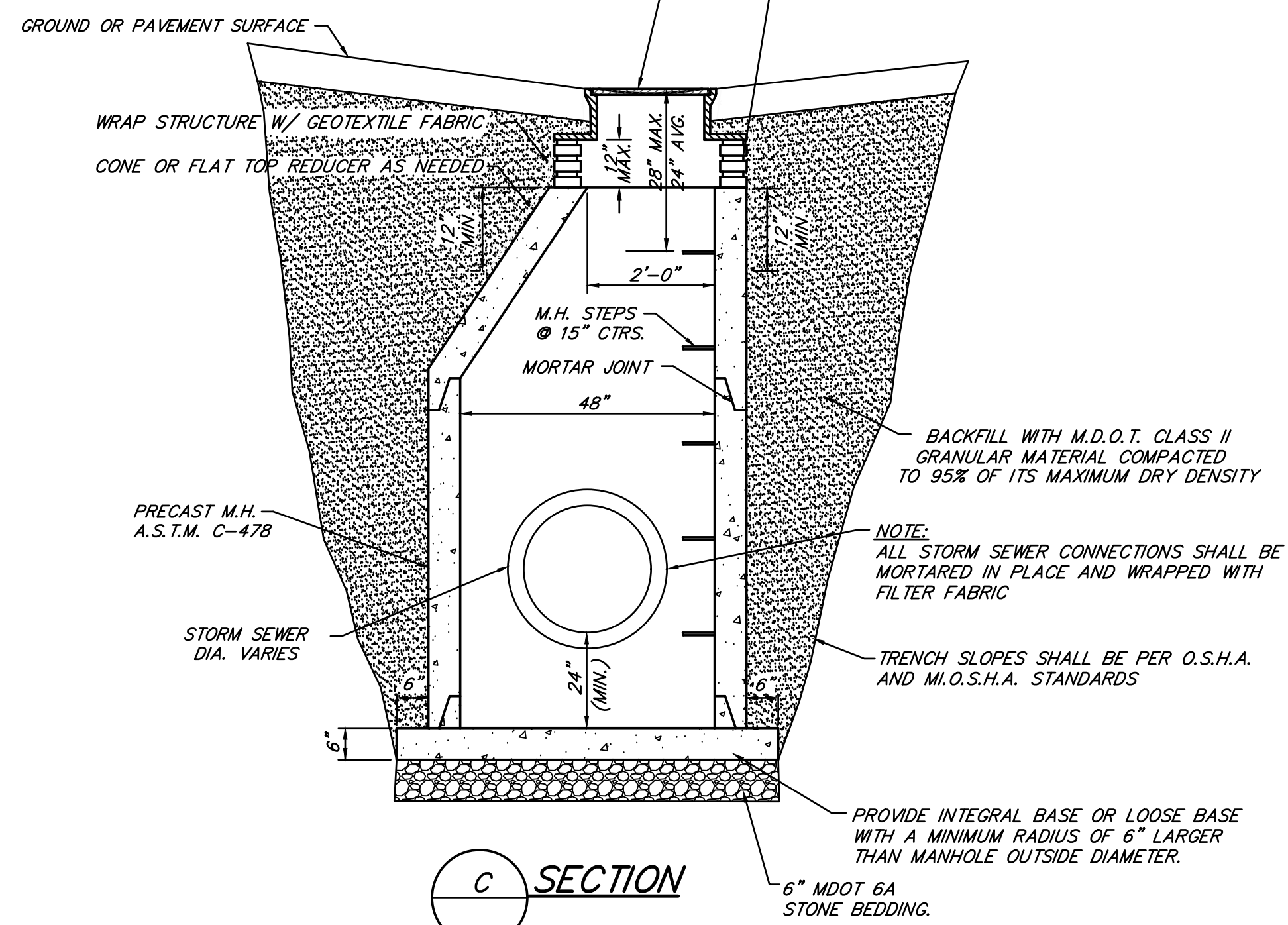


MAINTAIN MINIMUM SEPARATION BETWEEN END OF STORM SEWER AND INSIDE FACE OF MANHOLE. (TYPICAL ALL LOCATIONS).

PLAN
NOT TO SCALE

PROVIDE ADJUSTING RINGS, BRICKS, RADIUS BLOCKS, AND NON-SHRINK MORTAR. THE TOP OF THE STRUCTURE SHALL BE CLEANED, DAMPENED, AND A MINIMUM OF 1/2" BEAD OF NON-SHRINK MORTAR SHALL BE PLACED BETWEEN THE STRUCTURE, GRADE RINGS OR BRICKS, AND CASTING. MORTAR ON INSIDE AND OUTSIDE OF STRUCTURE.

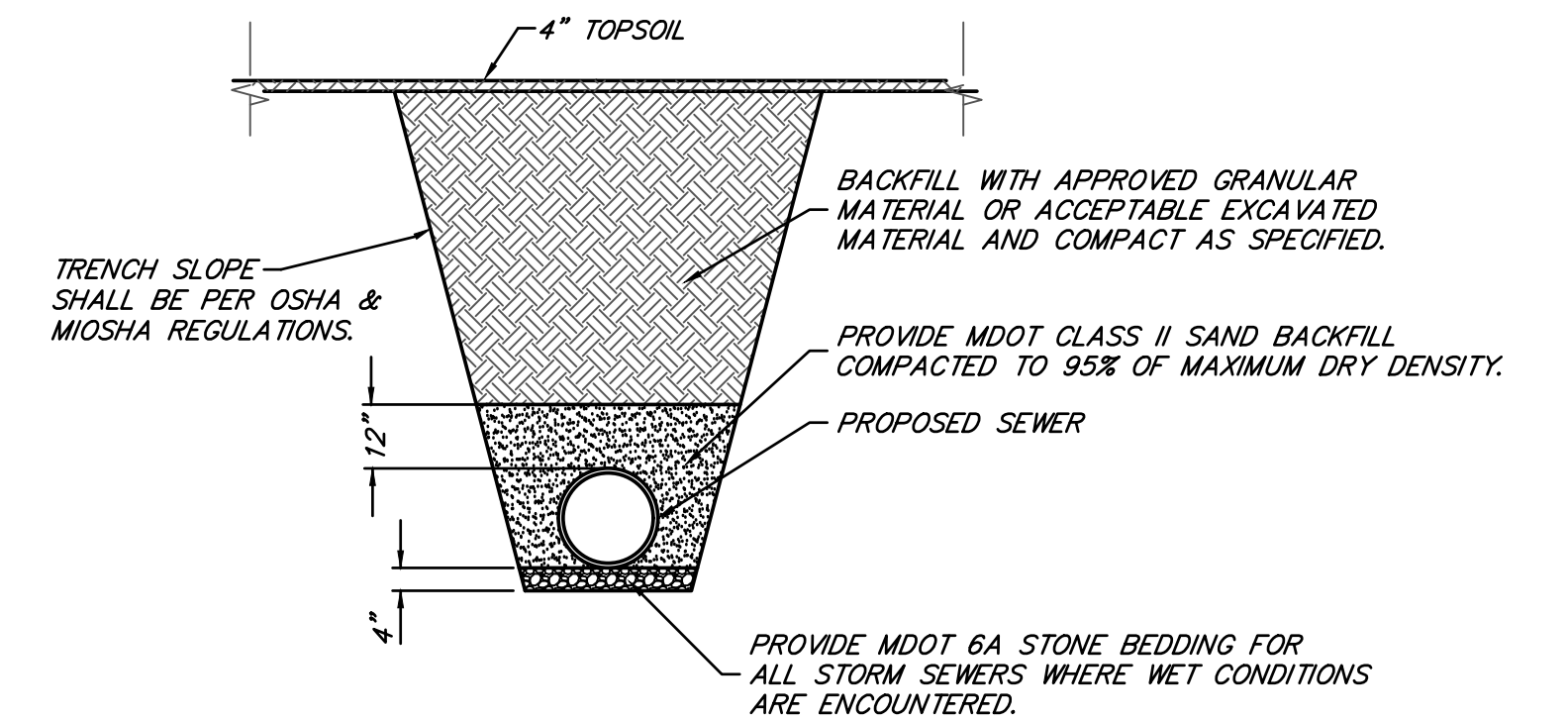
SEE PLAN FOR FRAME, CASTING & ELEVATION



SECTION

48" DIA. COMBINATION M.H. - C.B.

NOT TO SCALE



STORM SEWER TRENCH DETAIL
NOT TO SCALE

TRENCH WIDTH CHART

PIPE SIZE	MINIMUM	MAXIMUM
8" & 10"	24"	30"
12" & 15"	30"	36"
18"	34"	40"
21"	38"	42"
24"	42"	46"
27"	45"	49"
30"	49"	53"
36"	56"	60"
LARGER THAN 36"	I.D. +20"	I.D. +24"

BY	MARK	REVISIONS	DATE
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LOONFEATHER POINT PARK STORM SEWER

DETAILS

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DR. BY: <i>BH</i>	APP. BY: <i>KJW</i>	128240SG2020
STDS.	SHEET 5 OF 5	DR
DATE SCALE	APRIL 2020	FILE NO. DR-5089-05

OTHER BUSINESS

BOARD MEMBER UPDATES
