

McHENRY COUNTY COLLEGE
WATER SERVICE EXTENSION &
BOOSTER STATION INSTALLATION
CRYSTAL LAKE, ILLINOIS
8900 US Hwy 14



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	I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Illinois.	
	JOSEPH F. VAVRINA, P.E. License Number: 062-058926 My license renewal date is November 30, 2019. Pages or sheets covered by this seal: ALL "C" SHEETS	12/07/2017 DATE

	I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Illinois.	
	JASON M. WHYTE, P.E. License Number: 062-060462 My license renewal date is November 30, 2019. Pages or sheets covered by this seal: ALL "S" SHEETS	12/07/2017 DATE

	I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Illinois.	
	ROBERT JAMES THAYER, P.E. License Number: 062-066894 My license renewal date is November 30, 2019. Pages or sheets covered by this seal: ALL "E" SHEETS	12/07/2017 DATE

OWNER:
McHENRY COUNTY COLLEGE
8900 U.S. HIGHWAY 14
CRYSTAL LAKE, ILLINOIS 60012
PHONE: (815) 455-8564
MR. TODD WHEELAND — DIRECTOR OF FACILITY CONTRACTS AND PROJECTS

ENGINEER / SURVEYOR:
HR GREEN, INC.
420 NORTH FRONT STREET, SUITE 100
McHENRY IL 60050
PHONE: (815) 385-1778
JOSEPH F. VAVRINA, P.E. — PROJECT MANAGER
DOUG STALKER — PROJECT SURVEYOR

UTILITY CONFLICTS:		
UTILITY SERVICE	CONTACT	TELEPHONE #
WATER SERVICE:	CITY OF CRYSTAL LAKE, ENGINEERING DIVISION 100 WEST WOODSTOCK STREET CRYSTAL LAKE, IL 60014 MR. MICHAEL MAGNUSON	(815) 356-3614
SANITARY SERVICE:	CITY OF CRYSTAL LAKE, ENGINEERING DIVISION 100 WEST WOODSTOCK STREET CRYSTAL LAKE, IL 60014 MR. MICHAEL MAGNUSON	(815) 356-3614
STORM DRAINAGE:	CITY OF CRYSTAL LAKE, ENGINEERING DIVISION 100 WEST WOODSTOCK STREET CRYSTAL LAKE, IL 60014 MRS. ABIGAIL WILGREEN	(815) 356-3605
ELECTRIC SERVICE:	COMMONWEALTH EDISON 350 S. 2ND STREET ELGIN, IL 60123 MR. JAYVEE ROLDAN	(847) 608-2382
TELEPHONE SERVICE:	AT&T ILLINOIS 222 WEST JACKSON STREET WOODSTOCK, IL 60098 MR. STEVEN JONES	(815) 394-7270
GAS SERVICE:	NICOR 300 WEST TERRA COTTA AVENUE CRYSTAL LAKE, IL 60014 MS. LORA WIELAND	(815) 261-9406
ROADWAY AUTHORITY:	ILLINOIS DEPARTMENT OF TRANSPORTATION 201 WEST CENTER COURT SCHAUMBURG, IL 60196 MR. TOMAS GALLENBACH	(847) 705-4143

NOTE:

- * HR GREEN, INC. IS TO BE NOTIFIED 3 DAYS PRIOR TO CONSTRUCTION START.
- * HR GREEN, INC. SHALL BE INCLUDED IN ALL PRE-CONSTRUCTION MEETINGS.
- * PLANS WERE PREPARED WITH THE INTENT THAT HR GREEN, INC. WILL DO ALL CONSTRUCTION STAKING.
- * ANY DISCREPANCIES ON THIS PLAN SET MUST BE NOTED AND HR GREEN, INC. NOTIFIED PRIOR TO ACTUAL CONSTRUCTION.

Dial 811 or 1-800-892-0123

CALL JULIE 1-800-892-0123

WITH THE FOLLOWING:
COUNTY McHenry
CITY-TOWNSHIP Crystal Lake - Dorr
SEC. & 1/4 SEC. NO.# SW 1/4 OF SEC-25-T-44N-7E

48 hours before you dig
(Excluding Sat., Sun. & Holidays)



420 N. FRONT STREET, SUITE 100 | McHENRY, IL 60050
Phone: 815.385.1778 | Toll Free: 800.728.7805 | Fax: 815.385.1781 | HRGreen.com

FOR PERMIT/BID

DRAWN BY: ECH	JOB DATE: 2017	BAR IS ONE INCH ON OFFICIAL DRAWINGS.
APPROVED: JFV	JOB NUMBER: 160386	0" = 1"
CAD DATE: 12/6/2017 3:00:39 PM		IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.
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NO.	DATE	BY	REVISION DESCRIPTION

ILLINOIS DESIGN FIRM # 184-001322
420 N. FRONT STREET, SUITE 100
McHENRY, ILLINOIS 60050
PHONE: 815.385.1778 | TOLL FREE: 800.728.7805
FAX: 815.385.1781 | HRGreen.com



McHENRY COUNTY COLLEGE
WATER SERVICE EXTENSION &
BOOSTER STATION INSTALLATION
CRYSTAL LAKE, ILLINOIS

CIVIL SITEWORK
COVER SHEET

SHEET NO.
C-00

SPECIFICATIONS & GENERAL NOTES

All items of this project shall be governed by specifications included in the documents listed below:

- A. "Standard Specifications for Road and Bridge Construction" prepared by the Department of Transportation of the State of Illinois and adopted by said department (latest revision).
- B. "Supplemental Specifications and Recurring Special Provisions" adopted by the Illinois Department of Transportation (latest revision date).
- C. "Standards and Specifications for Soil Erosion and Sediment Control" (latest revision).
- D. "Standard Specifications for Water and Sewer Main Construction in Illinois" (latest revision).
- E. "City of Crystal Lake Development Ordinance and Engineering Standards"

In addition the following special provisions supplement the said specifications, and in case of conflict with any part or parts of said specifications, these special provisions shall take precedence and shall govern.

1. SCOPE OF WORK. The proposed improvement consists of supplying all the necessary labor, material and equipment to satisfactorily construct and install all improvements according to the plans designated as "McHENRY COUNTY COLLEGE – WATER SERVICE EXTENSION & BOOSTER STATION INSTALLATION."
2. CONSTRUCTION OF UNDERGROUND UTILITIES

- A. Excavation: Where working conditions and right-of-way permit, pipe line trenches with sloping sides may be used.

The slopes shall not extend below the top of the pipe, and trench excavations below this point shall be made with vertical sides with widths not exceeding those specified herein for the various sizes of pipe.

Open-cut trenches shall be sheeted and braced as required by the governing State and Federal laws and municipal ordinances, and as may be necessary to protect life, property, or the work.

Where firm foundation is not encountered at the grade established due to unsuitable soil, all such unsuitable material shall be removed and replaced with approved compacted granular material.

- B. Width of trench: See trench detail.

- C. Removal of water: Contractors shall, at all times during construction, provide and maintain ample means and devices with which to remove and properly dispose of all water entering the excavations. No sanitary sewer shall be used for disposal of trench water, unless specifically approved by the Engineer and then only if the trench water does not ultimately arrive at existing pumping or sewage treatment facilities.
- D. Bedding of pipe: All pipe shall be installed on a bed of approved, compacted granular material unless otherwise approved by the City Engineer. The bedding and backfilling of excavated materials shall be cleared with City first and be installed as per typical trench backfill detail.

- E. Special backfill: Whenever the excavation is in existing or proposed street, parking areas, driveways, or other paved areas, the trench shall be backfilled with approved selected granular material, compacted in place. The top 12" of the backfill shall be filled with road gravel or crushed stone and maintained as a temporary surface for the normal use of the area. Special backfill shall meet the requirements of the detail UC-03 found on Sheet C-07. Note: Excavated materials may be used if approved by the City Engineer.

- F. Restoration of drainage: As soon as possible after backfilling the trench, all ditching, grading and shaping necessary to restore the original drainage in the area of work shall be performed. Culverts removed during the course of the work shall be replaced as soon as practicable.

Adequate temporary drainage facilities shall be provided during construction.

- G. Utilities: The Contractor shall notify all utilities prior to the installation of any pipe lines. Where conflict exists between underground utilities and the proposed underground piping requiring a revision to the plans, such construction shall not be undertaken until such changes are approved by the City Engineer in writing.

3. Easements for the existing utilities, both public and private, and utilities within public rights-of-way are shown on the plans according to available records. The Contractor shall be responsible for determining the exact location in the field of these utility lines and their protection from damage due to construction operations. If existing utility lines of any nature are encountered which conflict in location with new construction, the Contractor shall notify the Engineer so that the conflict may be resolved.

4. Contractor shall be responsible for securing all Permits including municipal permits.

5. INSPECTION. All improvements shall be subject to inspection by a duly authorized and qualified City Inspector both during the course of construction and after construction is completed. The Inspector shall have authority over materials of construction, methods of construction and workmanship to insure compliance with working drawings and specifications. The Contractor shall provide for reasonable tests and proof of quality of materials as requested by the Inspector. Inspector shall have forty-eight (48) hours notice prior to construction.

6. Wherever a sewer crosses under a water main, the minimum vertical distance from the top of the sewer to the bottom of the water main shall be 18". Furthermore, a minimum horizontal distance of 10' between sanitary sewers and water mains shall be maintained. If either the vertical or horizontal distances described above cannot be maintained, or the sewer crosses above the water main, the sewer pipe shall be pipe of water main type quality and water main quality joints, or the water main shall be encased in a steel sleeve for a perpendicular distance of 10' on each side of the sewer.

7. PROTECTION OF WATER MAIN AND WATER SERVICE LINES. Water mains and water service lines shall be protected from sanitary sewers, storm sewers, combined sewers, house sewer service connections and drains as follows:

- A. Water Service Lines

1. Horizontal Separation
- a. Water mains shall be laid at least 10' horizontally from any existing or proposed drain, storm sewer, sanitary sewer, combined sewer or sewer service connection.
- b. Water mains may be laid closer than 10' to a sewer line when:

- (1) Local conditions present a lateral separation of 10';
- (2) The water main invert is at least 18" above the crown of the sewer; and
- (3) The water main is either in a separate trench or in the same trench on an undisturbed earth shelf located to one side of the sewer with a minimum vertical separation of 18".

- c. Both the water main and drain or sewer shall be constructed of slip-on or mechanical joint cast or ductile iron pipe, or PVC pipe meeting the requirements of Section 653.111 when it is impossible to meet (a) or (b) above. The drain or sewer shall be pressure tested to the maximum expected surcharge head before backfilling.

2. Vertical Separation.

- a. A water main shall be laid so that its invert is 18" above the crown of the drain or sewer whenever water mains cross storm sewers, sanitary sewers or sewer service connections. The vertical separation shall be maintained for that portion of the water main located within 10' horizontally of any sewer or drain crossing. A length of water main pipe shall be centered over the sewer to be crossed with joints equidistant from the sewer or drain.

- b. Both the water main and sewer shall be constructed of slip-on or mechanical joint cast or ductile iron pipe, or PVC pipe meeting requirements of Section 653.111 when:

- (1) It is impossible to obtain the proper vertical separation as described in (a) above; and
- (2) The water main passes under a sewer or drain.

- c. A vertical separation of 18" between the invert of the sewer or drain and the crown of the water main shall be maintained where a water main crosses under a sewer. Support the sewer or drain lines to prevent settling and breaking the water main.

- d. Construction shall extend on each side of the crossing until the normal distance from the water main to the sewer or drain line is at least 10'.

- B. Special Conditions. Alternate solutions shall be presented to the Agency when extreme topographical, geological or existing structural conditions make strict compliance with (A) and (B) above technically and economically impractical. Alternate solutions will be approved provided water-tight construction structurally equivalent to approved water main material is proposed.

9. The Contractor may not remove any material from the site except as directed by the Owner or Engineer in the case of excess material.

10. EROSION CONTROL.

It shall be the Contractor's responsibility to properly control erosion on the jobsite. Any siltation of conduits, structures, or ditches shall be cleaned and maintained by the Contractor until the seeding has taken hold. All washouts, gullies, etc. will be regraded and reseeded by the Contractor. The Contractor's responsibility for erosion control shall extend throughout the construction process. The Contractor shall be responsible for clean-up of paved surfaces within and adjacent to the project on a timely basis and/or at the direction of the City Engineer.

11. TOPSOIL PLACEMENT.

Contractor shall place stockpiled topsoil or imported material on all disturbed areas with 4" topsoil raked smooth to be ready for landscaping (seeding, sod, etc.).

12. The Engineer and City of Crystal Lake Engineering Department shall be notified if, during construction, any buried field tiles are exposed or disturbed. The Contractor shall reconnect said field tiles if deemed necessary.

13. Contractor shall provide insurance coverage as per the Bid Document. The policy of insurance shall include HR Green, Inc., the City of Crystal Lake and it's Agents as an additional insured or provide separate coverage with an Owner's Protective Policy, as per the amounts stated in the Standard Specifications. No work shall begin until the certificate of insurance is on file with the Engineer. All costs for insurance shall be considered incidental to the contract.

14. The Contractor shall be responsible for the installation and maintenance of adequate signs, traffic control devices, and warning devices to inform and protect the public during all phases of construction. See City Standard Traffic Control detail for lane closures of public roads.

15. The Engineer shall be responsible for the following:

- A. To visit the construction site in order to better carry out the duties and responsibilities assigned by the Owner and undertaken by the Engineer; and

- B. The Engineer shall not, during such visits or as a result of such observations of the Contractor's work in progress, supervise, direct, have control over the Contractor's work, nor shall the Engineer have the authority over the responsibility for the means, methods, techniques, sequences, or procedures of construction selected by the Contractor, for safety precautions and programs incidental to the work of the Contractor, or for any failure of the Contractor to comply with laws, rules, regulations, ordinances, codes or orders applicable to the Contractor (furnishing and performing the work). In the event of disagreement between the Engineer and the Contractor as to the full responsibility, the Engineer can neither guarantee the performance of the construction contracts by the Contractor nor assume responsibility for the Contractor's failure to furnish and perform his work in accordance with the Contract Documents.

17. No construction plans shall be used for construction unless specifically marked "For Construction." Prior to commencement of construction, the Contractor shall verify all dimensions and conditions affecting their work with the actual conditions at the job site. In addition, the Contractor must verify the Engineer's line and grade stakes. If there are any discrepancies from what is shown on the construction plans, he must immediately report same to the Engineer before doing any work, otherwise the Contractor assumes full responsibility. In the event of disagreement between the construction plans, standard specifications and/or special details, the Contractor shall secure written instructions from the Engineer prior to proceeding with any part of the work affected by omissions or discrepancies. Failing to secure such instructions, the Contractor will be considered to have proceeded at his own risk and expense.

In the event of any doubt or question arising with respect to the true meaning of the construction plans or specifications, the decision of the Engineer shall be final and conclusive.

18. The Contractor shall indemnify and hold harmless the City, City's Engineers their agents and it's employees, HR Green, Inc. and McHenry County College from and against all claims, damages, losses and expenses, including attorney's fees arising out of or resulting from the performance of the Contractor's work. In any and all claims against the City or its employees, by any employee of the Contractor, or anyone directly or indirectly employed by the Contractor, or anyone for whose acts the Contractor may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount of damages, waiver of subrogation compensation or benefits payable by or for the Contractor under Workmen's Compensation acts, disability benefit acts or other employee benefit acts.

19. Saving of removal items as noted on the plans, specified in Section 440 of the Standard Specifications, or as required by the engineer, shall be considered incidental to the cost of the item being removed, and no extra compensation will be allowed, unless otherwise specified.

20. A performance guarantee shall be required (letter of credit) for all public utilities. Also, a two year maintenance bond shall be established upon completion of work.

21. All surplus soil that will need to be hauled and disposed of offsite will need to be certified that it is not contaminated as defined under 415 ILCS 5/3.160 and any fees, taxes, surcharges charged by or through the operator(s) of clean construction or demolition debris (CCDD) or uncontaminated soil fill operations for the acceptance of uncontaminated soil shall be paid for by the contractor and those fees included in their bid price.

COORDINATION WITH UTILITIES

Prior to the start of construction, the contractor shall have all utilities located by J.U.L.I.E. (811) (1-800-892-0123). The contractor shall cooperate with all utility owners as provided for in the Standard Specifications.

The contractor shall be responsible for the protection of all underground or surface utilities, even though they may not be shown on the plans. Any utility that is damaged during construction shall be repaired or replaced to the satisfaction of the Engineer or the Owner. This work shall be paid for at the Contractor's expense.

It is the Contractor's responsibility to locate all existing utilities prior to construction. The location of existing utilities as shown on these plans is based on record information and may not be accurate. Where conflict exists between existing utilities and the proposed underground piping requiring a revision to the plans, such construction shall not be undertaken until such changes are approved by the Engineer. The contractor shall report all such conflicts immediately to the Engineer.

All existing utilities within the project area shall be removed and relocated, if necessary, for construction by the utility company which has jurisdiction over it. The Contractor is responsible for scheduling with the appropriate utility company.

Where proposed water main crosses under existing gas main the Contractor shall provide extra care when installing proposed water main to prevent damage to existing gas main.

The coordination of all utility work for the construction project will be discussed at a pre construction meeting.

TREE PROTECTION

Tree protection fencing (snow fence) shall be installed and maintained during construction in accordance with the plans.

The contractor shall take care in grading near trees, shrubs and bushes. This work shall be included and paid for as "Tree Protection." Saw cutting of tree roots shall be considered incidental to the contract.

The contractor shall make every effort to avoid disturbing any existing areas that are not marked for removal on the plans. If damage occurs, the contractor shall replace, in kind, the item or items at his/her expense in a manner meeting with the approval of the Engineer. All vegetation being removed shall be replaced with the same size and type. No additional compensation will be allowed for damaged items.

THE SPECIFICATIONS ON THIS SHEET ARE IN CONJUNCTION WITH THE SPECIFICATIONS OUTLINED IN THE PROJECT MANUAL. THE INTENT IS FOR THE SPECIFICATIONS TO WORK TOGETHER AND IF AN DISCREPANCIES ARISE BETWEEN SPECIFICATION THE CONTRACTOR SHALL BRING IT TO THE ATTENTION OF THE ENGINEER. FINAL DETERMINATION AS TO WHICH SPECIFICATION WILL PREVAIL WILL BE DETERMINED BY THE ENGINEER.

EROSION CONTROL & LANDSCAPE RESTORATION

"EROSION CONTROL" includes all temporary erosion control (silt fence, inlet filter baskets, etc., and permanent erosion control (all necessary earthwork, grass sod, fertilizing, watering etc.)

Payment for "EROSION CONTROL" shall not be paid until all permanent erosion control is in place and to the satisfaction of the City of Crystal Lake and the engineer.

It shall be the Contractor's responsibility to properly control erosion on the job site through the use of inlet filter baskets, filter dikes, filter fabrics, etc. Any siltation of conduits, structures, or ditches shall be cleaned and maintained by the Contractor until the seeding has taken hold. All washouts, gullies, etc. will be regraded and reseeded by the Contractor.

For all drainage structures in the disturbed areas, silt filter baskets shall be placed between frame and grate and maintained by the Contractor until vegetation is established, as determined by the City.

The Contractor's responsibility for erosion control shall extend throughout the construction process. The Contractor shall be responsible for cleanup of paved surfaces daily within and outside of the project caused by the Contractor.

Erosion control structures must be inspected weekly and after every storm of one half inch of rainfall or greater by the Contractor. An inspection report must be submitted by the Contractor to the City following each inspection. Any repairs or replacement needed to ensure adequate erosion control must be made immediately at the Contractor's expense.

Once the water main installation has been completed, all disturbed areas are to be graded to existing contours, or to provide positive drainage to proposed and existing drainage structures unless otherwise noted on plans.

Final grade shall meet existing grade and shall be of at least 4" of topsoil, salt tolerant sod, as determined by the City. All grading shall be considered included in the cost of water main construction and restoration.

The vegetative growth of permanent sodding shall be the responsibility of the contractor. Adequate watering shall be supplied until deemed established by the City staff.

The contractor shall provide and maintain a concrete truck washout at each project location throughout the construction process.

UTILITY NOTES:

1. SEE SHEETS C-03 & C-04 FOR UTILITY TAGS.
2. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF SITE PLAN DOCUMENTS AND ARCHITECTURAL DESIGN FOR EXACT BUILDING UTILITY CONNECTION LOCATIONS, DOOR ACCESS, AND EXTERIOR GRADING. THE CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES/SERVICES WITH THE INDIVIDUAL COMPANIES TO AVOID CONFLICTS AND ENSURE PROPER CONDITIONS ARE ACHIEVED. THE JURISDICTION UTILITY REQUIREMENTS SHALL ALSO BE MET, AS WELL AS COORDINATING THE UTILITY TIE-INS/CONNECTIONS PRIOR TO CONNECTING TO THE EXISTING UTILITY/SERVICE. WHERE CONFLICTS EXIST WITH THESE SITE PLANS, ENGINEER IS TO BE NOTIFIED PRIOR TO CONSTRUCTION TO RESOLVE SAME.
3. FIELD VERIFY ELEVATIONS AND LOCATIONS OF ALL CONNECTIONS TO EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION.
4. PROVIDE TEMPORARY SUPPORT FOR EXISTING UTILITY LINES THAT ARE ENCOUNTERED DURING CONSTRUCTION UNTIL BACKFILLING IS COMPLETE.
5. MAINTAIN A MINIMUM OF 6.0' COVER OVER ALL WATER MAINS.
6. ADJUST ALL MANHOLES AND FRAMES TO FINISHED GRADES.
7. ALL WATERMAIN/WATER SERVICES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF CRYSTAL LAKE PLUMBING CODE.
8. 18" MINIMUM VERTICAL CLEARANCE BETWEEN SANITARY/STORM SEWER AND WATER MAIN. (PER E.P.A. STANDARDS)
9. MAINTAIN A MINIMUM OF 10' HORIZONTAL SEPARATION BETWEEN SANITARY SEWER LINES AND PUBLIC WATER MAINS. (PER E.P.A. STANDARDS)
10. WHERE PUBLIC UTILITY FIXTURES ARE SHOWN AS EXISTING ON THE PLANS OR ENCOUNTERED WITHIN THE CONSTRUCTION AREA, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE OWNERS OF THOSE UTILITIES PRIOR TO THE BEGINNING OF ANY CONSTRUCTION. THE CONTRACTOR SHALL AFFORD ACCESS TO THESE FACILITIES FOR NECESSARY MODIFICATION OF SERVICES. UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS AND THEREFORE, THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS PRESENTLY NOT KNOWN OR SHOWN. IT IS THE CONTRACTORS RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATIONS AND TO AVOID DAMAGE THERETO. NO CLAIMS FOR ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR ANY INTERFERENCE OR DELAY CAUSED BY SUCH WORK. THE CONTRACTOR IS REQUIRED TO UTILIZE THE UTILITY CALL JULIE AT 1-800-892-0123 AT LEAST 48 HOURS PRIOR TO EXCAVATING ANYWHERE ON THE PROJECT.
11. LOCATION OF SITE UTILITIES SHALL BE VERIFIED WITH PROPER UTILITY COMPANY PROVIDING SERVICE.
12. SEE TYPICAL TRENCH CROSS SECTION DETAIL ON SHEET C-07 FOR BACKFILLING AND COMPACTION REQUIREMENTS.
13. MATERIAL PERMITTED FOR USE ON WATERMAIN/WATER SERVICE IS DUCTILE IRON (CLASS 52).
14. ALL DUCTILE IRON PIPE SHALL BE ENCASED IN POLYETHYLENE WRAP PER CITY STANDARDS.
15. ALL WATERMAIN CONSTRUCTION SHALL MEET THE REQUIREMENTS OF THE CITY OF CRYSTAL LAKE PUBLIC WORKS.
16. ALL FIELD TILES ENCOUNTERED SHALL BE REPLACED AND/OR CONNECTED TO THE STORM SEWER SYSTEM AND LOCATED AND IDENTIFIED ON THE RECORD PLANS BY THE CONTRACTOR.
17. ALL TRENCHING, PIPE LAYING, AND BACKFILLING SHALL BE IN ACCORDANCE WITH FEDERAL OSHA REGULATIONS.
18. GENERAL CONTRACTOR SHALL HAVE APPROVAL OF ALL GOVERNING AGENCIES HAVING JURISDICTION OVER THIS SYSTEM PRIOR TO INSTALLATION.
19. ALL BUILDING UTILITY SERVICE LOCATIONS TO BE VERIFIED PRIOR TO CONSTRUCTION.
20. ALL EXISTING UTILITIES TO BE FIELD VERIFIED PRIOR TO CONSTRUCTION.
21. CONTRACTOR TO LOCATE ANY ELECTRIC LINES SERVICING SURROUNDING PARKING LOT LIGHTING WITH IN THE AREA OF CONSTRUCTION PRIOR TO THE INSTALLATION OF WATER MAIN PIPE.
22. CONTRACTOR TO SCHEDULE THE ROADWAY CROSSING AND TEMPORARY ROAD CLOSED SIGNS FOR THE MAIN ACCESS ROAD TO OCCUR DURING OFF PEAK HOURS. CONTRACTOR SHALL POST APPROPRIATE TRAFFIC CONTROL SIGNAGE PRIOR TO CLOSING THE ROADWAY.
23. CONTRACTOR TO COORDINATE W/ COLLEGE PRIOR TO CLOSING ANY PORTIONS OF THE ACCESS ROAD.

SYMBOL LEGEND

EXISTING	PROPOSED
SANITARY MANHOLE	⊗
STORM MANHOLE	⊙
STORM CATCH BASIN/INLET	●
INLET	■
FLARED END SECTION	▷
DRY WELL	◐
VALVE VAULT	⊗
FIRE HYDRANT	⊙
LIGHT POLE	✱
STREET SIGN	+
REGULATORY SIGN	⊕
UTILITY POLE	⊙
UTILITY BOX	⊗
MAILBOX	⊙
WELL	⊙
STORM SEWER	—▷—
SANITARY SEWER	—▷—
CULVERT	-----
WATER MAIN	—W—
WATER MAIN ENCASEMENT	-----
SANITARY FORCE MAIN	-----
STORM UNDERDRAIN	-----
ELECTRIC LINE	—E—
TELEPHONE LINE	—T—
GAS LINE	—G—
CABLE TV LINE	—CTV—
TREE LINE	☼☼☼☼☼
TREE	☼
CONTOURS	—x—
FENCE	—x—
STONE RIP RAP	-----
EROSION CONTROL FENCE (QUANTITY SPECIFIED PER PLANS)	-----
DRAINAGE DIRECTION ARROW	➔
10-100 YEAR OVERFLOW DIRECTION ARROW	➔

LEGEND

#	DENOTES WATER MAIN TAG (SEE UTILITY TAGS FOR INFO)
◇	DENOTES CONFLICT TAGS (SEE CONFLICT TAGS FOR INFO)
⊗	DENOTES MAINTAIN 18" VERTICAL SEPARATION PER TO I.E.P.A.'S REQUIREMENTS
▨	DENOTES WATER MAIN CASING
▨	DENOTES TRENCH BACKFILL
▨	DENOTES PAVEMENT REMOVAL & REPLACEMENT
✕	DENOTES TREE REMOVAL

FOR PERMIT/BID

DRAWN BY: ECH JOB DATE: 2017 BAR IS ONE INCH ON OFFICIAL DRAWINGS.
APPROVED: JFV JOB NUMBER: 160386 0
CAD DATE: 12/6/2017 1:06:58 PM IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.
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NO.	DATE	BY	REVISION DESCRIPTION



ILLINOIS DESIGN FIRM # 184.001322
420 N. FRONT STREET, SUITE 100
McHENRY, ILLINOIS 60050
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FAX: 815.385.1781 | HRGreen.com



McHENRY COUNTY COLLEGE
WATER SERVICE EXTENSION &
BOOSTER STATION INSTALLATION
CRYSTAL LAKE, ILLINOIS

CIVIL SITEWORK

GENERAL NOTES, SPECIFICATIONS & LEGEND

SHEET NO.

C-01



SITE BENCHMARKS:

SITE BENCHMARK #1:
CHISELED SQUARE ON TOP OF CONCRETE TRAFFIC CONTROLLER BASE. LOCATED AT THE SOUTHEASTERN CORNER OF THE INTERSECTION OF THE MAIN ACCESS DRIVE AND U.S. HIGHWAY 14. ELEVATION=922.53 (NAVD88)

SITE BENCHMARK #2:
CHISELED SQUARE ON TOP OF CONCRETE LIGHT POLE BASE. LOCATED JUST SOUTHEASTERLY FROM MAIN ENTRANCE OF THE BUILDING. ELEVATION=920.01 (NAVD88)

SITE BENCHMARK #3:
CHISELED SQUARE ON TOP OF CONCRETE LIGHT POLE BASE. ON THE LAST LIGHT POLE BASE OFF OF THE MAIN ACCESS ROAD OF THE MAIN SOUTHEASTERLY PARKING LOT. ELEVATION=921.43 (NAVD88)

FOR PERMIT/BID

DRAWN BY: ECH
APPROVED: JFV
CAD DATE: 12/6/2017 4:38:00 PM
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JOB DATE: 2017
JOB NUMBER: 160386

BAR IS ONE INCH ON OFFICIAL DRAWINGS.
0" = 1"
IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

NO.	DATE	BY	REVISION DESCRIPTION

HRGreen

ILLINOIS DESIGN FIRM # 184.001322
420 N. FRONT STREET, SUITE 100
McHENRY, ILLINOIS 60050
PHONE: 815.385.1778 | TOLL FREE: 800.728.7805
FAX: 815.385.1781 | HRGreen.com

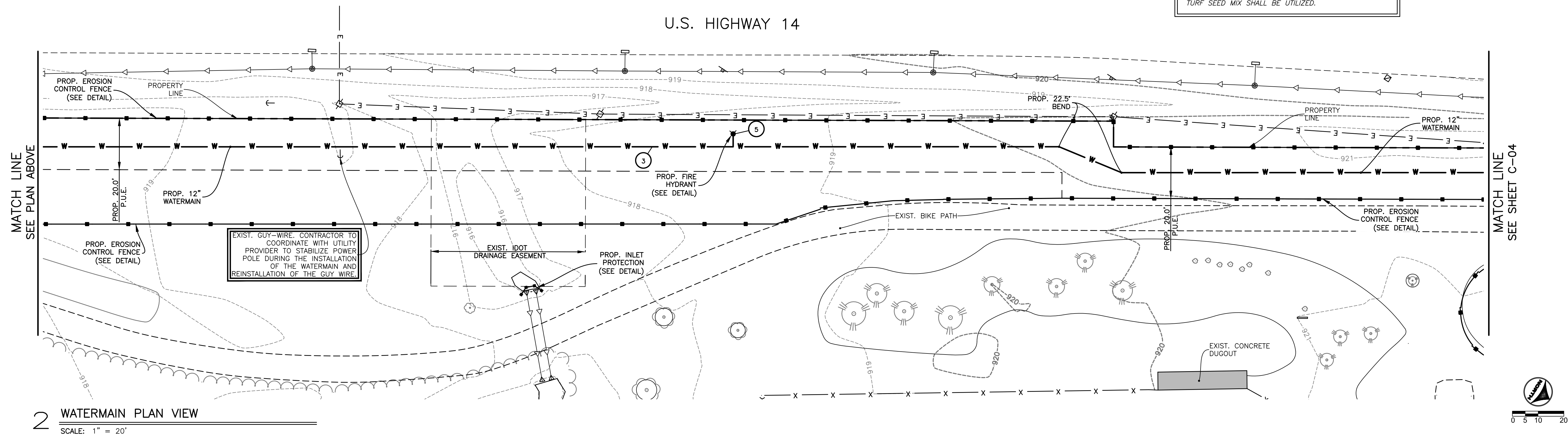
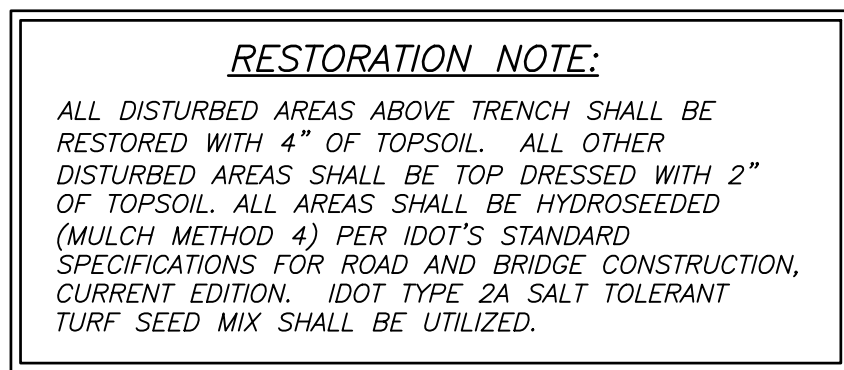
McHenry County College

McHENRY COUNTY COLLEGE
WATER SERVICE EXTENSION & BOOSTER STATION INSTALLATION
CRYSTAL LAKE, ILLINOIS

CIVIL SITEWORK
OVERALL SITE PLAN

SHEET NO.
C-02

- CONTRACTOR NOTE:
CONTRACTOR TO COORDINATE BIKE PATH REMOVAL
WITH MCCD PRIOR TO CONSTRUCTION START.



2 WATERMAIN PLAN VIEW

SCALE: 1" = 20'

FOR PERMIT/BID

NO.	DATE	BY	REVISION DESCRIPTION

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McHenry
County College

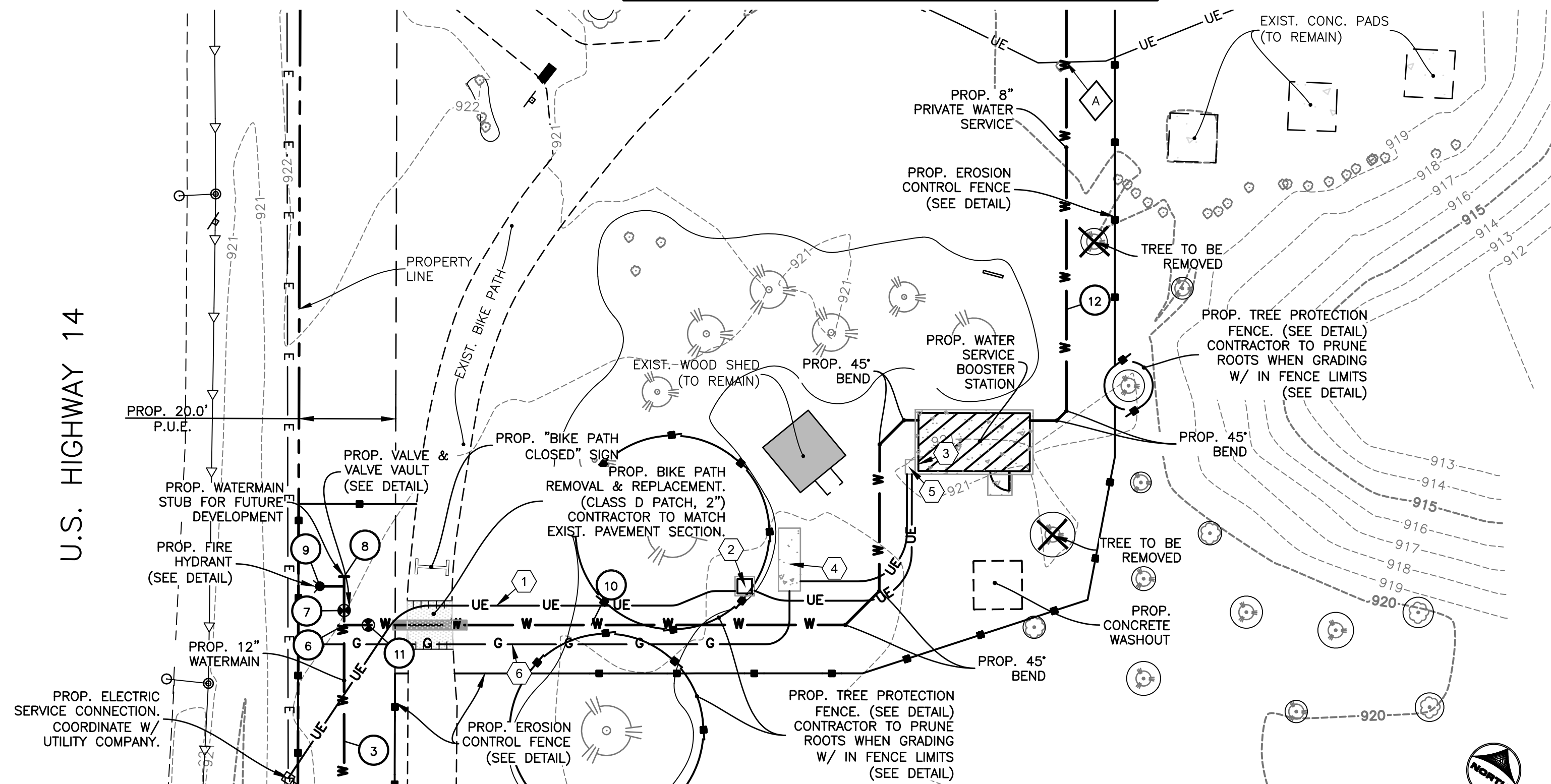
McHENRY COUNTY COLLEGE
WATER SERVICE EXTENSION &
BOOSTER STATION INSTALLATION
CRYSTAL LAKE, ILLINOIS

CIVIL SITEWORK

WATERMAIN PLAN VIEW 1

SHEET NO.
C-03

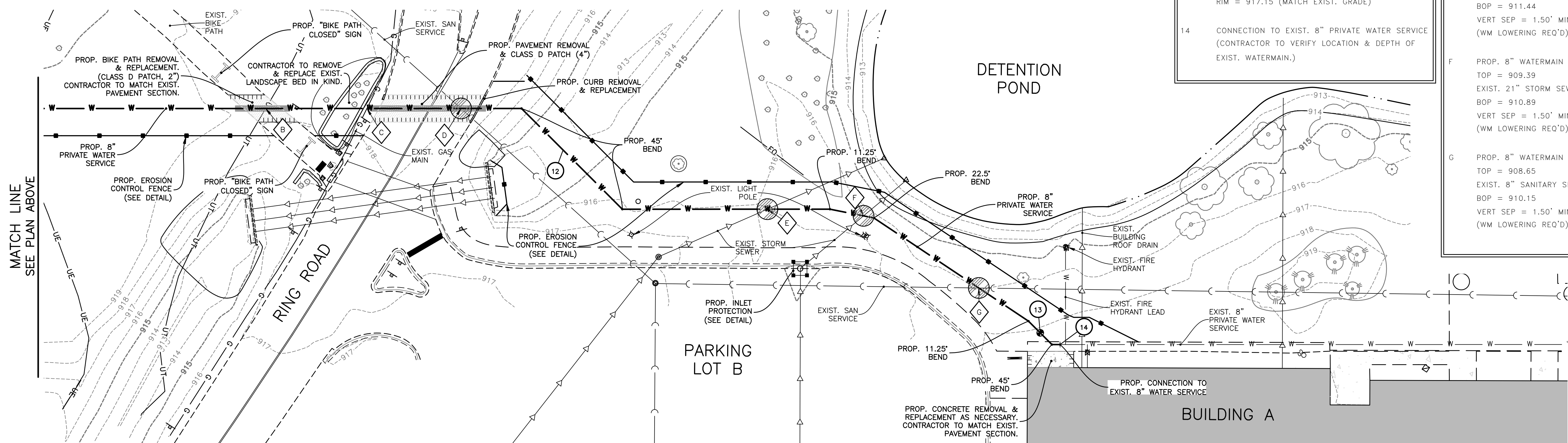
MATCH LINE
SEE PLAN BELOW



1 WATERMAIN PLAN VIEW

SCALE: 1" = 20'

MATCH LINE
SEE SHEET SHEET C-03



2 WATERMAIN PLAN VIEW

SCALE: 1" = 20'

CONTRACTOR NOTE:

CONTRACTOR TO COORDINATE BIKE PATH REMOVAL WITH MCCD PRIOR TO CONSTRUCTION START.

RESTORATION NOTE:

ALL DISTURBED AREAS ABOVE TRENCH SHALL BE RESTORED WITH 4" OF TOPSOIL. ALL OTHER DISTURBED AREAS SHALL BE TOP DRESSED WITH 2" OF TOPSOIL. ALL AREAS SHALL BE HYDROSEED (MULCH METHOD 4) PER IDOT'S STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, CURRENT EDITION. IDOT TYPE 2A SALT TOLERANT TURF SEED MIX SHALL BE UTILIZED.

KEY NOTES:

- 1 UNDERGROUND PRIMARY ELECTRIC LINE. CONTRACTOR TO COORDINATE CONNECTION TO EXIST. POWER POLE WITH COMED.
- 2 PAD MOUNTED TRANSFORMER. CONTRACTOR TO PROVIDE & INSTALL PAD & SECONDARY SERVICE IN ACCORDANCE WITH COMED SPECIFICATIONS & REQUIREMENTS.
- 3 METERING CURRENT TRANSFORMER CABINET. TO BE MOUNTED ON BOOSTER STATION BUILDING EXTERIOR.
- 4 NATURAL GAS POWERED STANDBY GENERATOR W/ 13'X4.5' CONCRETE PAD. SEE DETAIL 7 ON SHEET S-02 FOR PAD DETAIL.
- 5 SERVICE ENTRANCE RATED AUTOMATIC TRANSFER SWITCH W/ 2'X3' CONCRETE PAD. SEE DETAIL 7 ON SHEET S-02 FOR PAD DETAIL.
- 6 NATURAL GAS LINE TO GENERATOR. CONTRACTOR TO COORDINATE SERVICE LINE WITH NICOR.

WATER TAGS

- 3 990 LIN FT WATERMAIN, 12" w/ BENDS
DUCTILE IRON PIPE - CLASS 52
- 4 FIRE HYDRANT W/ AUXILIARY VALVE
(SEE DETAIL)
BURY ELEV = 919.50
- 5 FIRE HYDRANT W/ AUXILIARY VALVE
(SEE DETAIL)
BURY ELEV = 918.75
- 6 12"X8"X12" TEE
- 7 12" WATERMAIN VALVE & 5' DIA. VALVE VAULT
(SEE DETAIL)
RIM = 921.00 (MATCH EXIST. GRADE)
- 8 12" MJ CAP
POUR CONCRETE THRUST BLOCK
- 9 FIRE HYDRANT W/ AUXILIARY VALVE
(SEE DETAIL)
BURY ELEV = 921.30
- 10 154 LIN FT PRIVATE WATER SERVICE, 8" w/BENDS
DUCTILE IRON PIPE - CLASS 52
- 11 8" WATER SERVICE VALVE & VALVE BOX
(SEE DETAIL)
RIM = 920.75 (MATCH EXIST. GRADE)
- 12 496 LIN FT PRIVATE WATER SERVICE, 8" w/BENDS
DUCTILE IRON PIPE - CLASS 52
- 13 8" WATER SERVICE VALVE & VALVE BOX
(SEE DETAIL)
RIM = 917.15 (MATCH EXIST. GRADE)
- 14 CONNECTION TO EXIST. 8" PRIVATE WATER SERVICE
(CONTRACTOR TO VERIFY LOCATION & DEPTH OF EXIST. WATERMAIN.)

CROSSING TAGS

- A PROP. 8" WATERMAIN
TOP = 913.75
EXIST. ELECTRIC
BOP = 916.87 (APPROX.)
(CONTRACTOR TO VERIFY LOCATION & DEPTH OF ELECTRIC UTILITY. NOTIFY ENGINEER W/ ANY DISCREPANCIES.)
VERT SEP = 3.12'
- B PROP. 8" WATERMAIN
TOP = 912.10
EXIST. TELEPHONE
BOP = 915.22 (APPROX.)
(CONTRACTOR TO VERIFY LOCATION & DEPTH OF TELEPHONE UTILITY. NOTIFY ENGINEER W/ ANY DISCREPANCIES.)
VERT SEP = 3.12'
- C PROP. 8" WATERMAIN
TOP = 912.23
EXIST. GAS
BOP = 915.35 (APPROX.)
(CONTRACTOR TO VERIFY LOCATION & DEPTH OF GAS UTILITY. NOTIFY ENGINEER W/ ANY DISCREPANCIES.)
VERT SEP = 3.12'
- D EXIST. 10" SANITARY SEWER
TOP = 910.04
PROP. 8" WATERMAIN
BOP = 911.65
VERT SEP = 1.61' (1.50' MIN.)
(WM LOWERING REQ'D)
- E PROP. 8" WATERMAIN
TOP = 909.94
EXIST. 12" STORM SEWER
BOP = 911.44
VERT SEP = 1.50' MIN.
(WM LOWERING REQ'D)
- F PROP. 8" WATERMAIN
TOP = 909.39
EXIST. 21" STORM SEWER
BOP = 910.89
VERT SEP = 1.50' MIN.
(WM LOWERING REQ'D)
- G PROP. 8" WATERMAIN
TOP = 908.65
EXIST. 8" SANITARY SEWER
BOP = 910.15
VERT SEP = 1.50' MIN.
(WM LOWERING REQ'D)

FOR PERMIT/BID

DRAWN BY: ECH
APPROVED: JFV
CAD DATE: 12/6/2017 4:40:47 PM
CAD FILE: J:\2016\160386\CAD\Drawings\C\160386-Watermain-Plans.dwg

JOB DATE: 2017
JOB NUMBER: 160386

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NO.	DATE	BY	REVISION DESCRIPTION

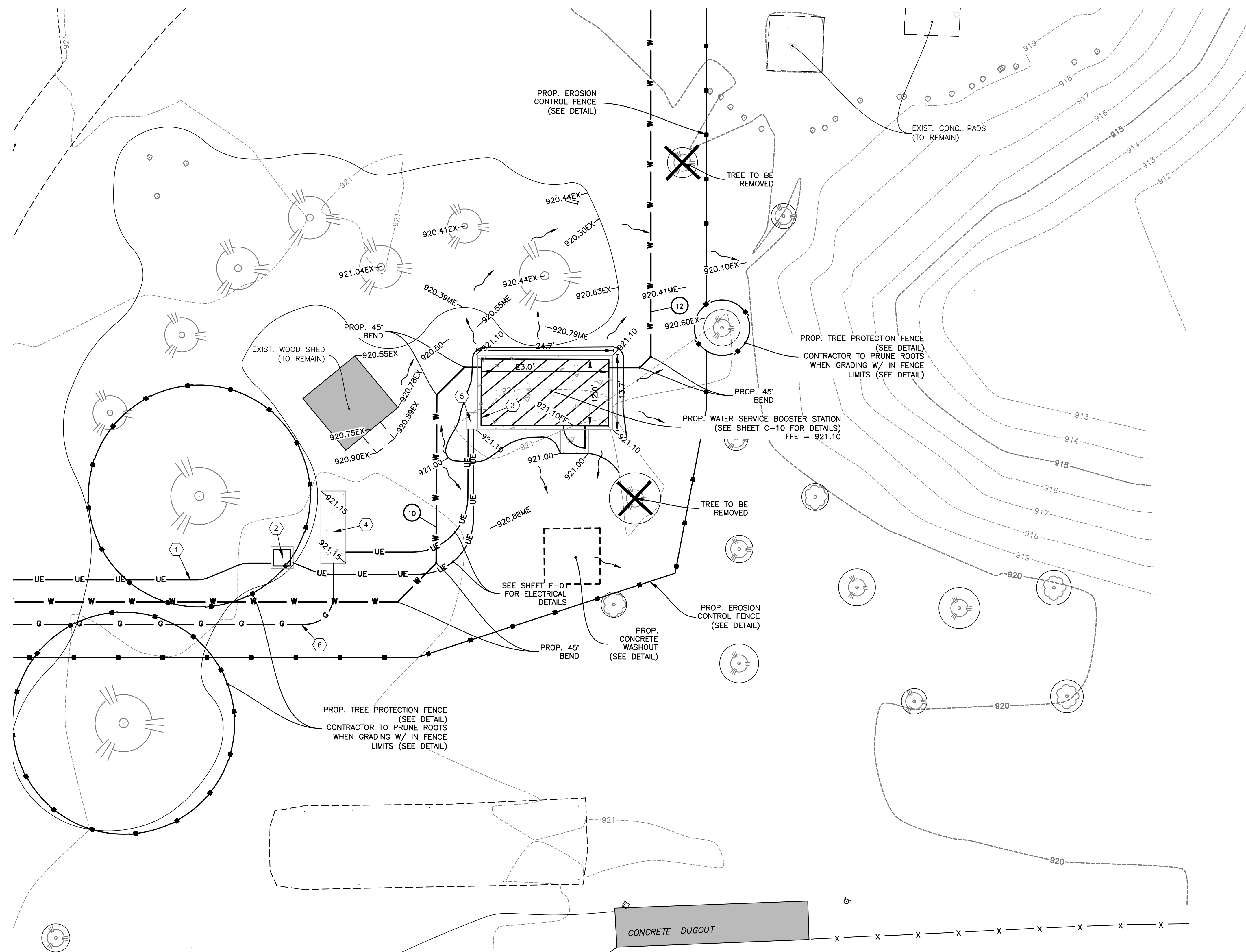
ILLINOIS DESIGN FIRM # 184.001322
420 N. FRONT STREET, SUITE 100
McHENRY, ILLINOIS 60050
PHONE: 815.385.1778 | TOLL FREE: 800.728.7805
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McHENRY COUNTY COLLEGE
WATER SERVICE EXTENSION &
BOOSTER STATION INSTALLATION
CRYSTAL LAKE, ILLINOIS

CIVIL SITEWORK
WATERMAIN PLAN VIEW 2

SHEET NO.
C-04

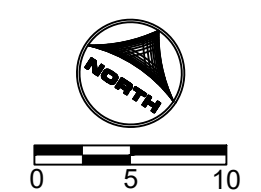


#	WATER TAGS
10	154 LIN FT PRIVATE WATER SERVICE, 8" w/BENDS DUCTILE IRON PIPE - CLASS 52
12	496 LIN FT PRIVATE WATER SERVICE, 8" w/BENDS DUCTILE IRON PIPE - CLASS 52

RESTORATION NOTE:
ALL AREAS DISTURBED SHALL BE RESTORED WITH 4" OF TOPSOIL AND HYDROSEEDING PER IDOT'S STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, CURRENT EDITION, IDOT TYPE 1A, SALT TOLERANT TURF SEED MIX SHALL BE UTILIZED

- KEY NOTES:**
- 1 UNDERGROUND PRIMARY ELECTRIC LINE. CONTRACTOR TO COORDINATE CONNECTION TO EXIST. POWER POLE WITH COMED.
 - 2 PAD MOUNTED TRANSFORMER. CONTRACTOR TO PROVIDE & INSTALL PAD & SECONDARY SERVICE IN ACCORDANCE WITH COMED SPECIFICATIONS & REQUIREMENTS.
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 - 4 NATURAL GAS POWERED STANDBY GENERATOR W/ 13'X4.5' CONCRETE PAD. SEE DETAIL 7 ON SHEET S-02 FOR PAD DETAIL.
 - 5 SERVICE ENTRANCE RATED AUTOMATIC TRANSFER SWITCH W/ 2'X3' CONCRETE PAD. SEE DETAIL 7 ON SHEET S-02 FOR PAD DETAIL.
 - 6 NATURAL GAS LINE TO GENERATOR. CONTRACTOR TO COORDINATE SERVICE LINE WITH NICOR.

CONTRACTOR NOTE:
SEE SHEET C-02 FOR THE LOCATION OF THE PROPOSED CONSTRUCTION ACCESS DRIVE.



FOR PERMIT/BID

DRAWN BY: ECH JOB DATE: 2017
APPROVED: JFV JOB NUMBER: 160386
CAD DATE: 12/6/2017 4:39:30 PM
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NO.	DATE	BY	REVISION DESCRIPTION

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ILLINOIS DESIGN FIRM # 184-001322
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McHENRY COUNTY COLLEGE
WATER SERVICE EXTENSION &
BOOSTER STATION INSTALLATION
CRYSTAL LAKE, ILLINOIS

CIVIL SITEWORK
BOOSTER STATION SITE & GRADING PLAN

SHEET NO.
C-05

EROSION CONTROL NOTES

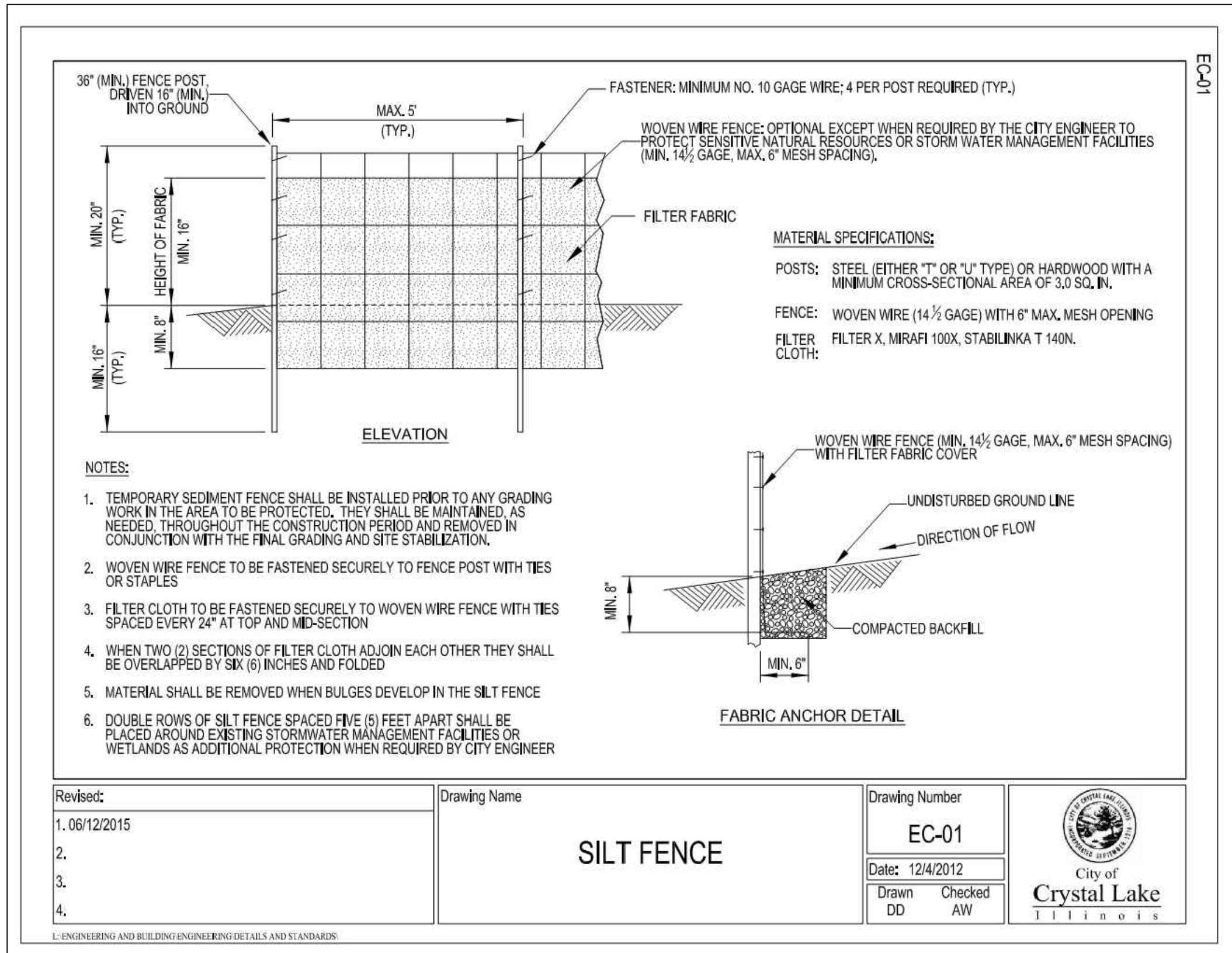
- All sedimentation and erosion control regulations shall be adhered to per City of Crystal Lake requirements
- All erosion control measures shall be installed prior to the start of construction.
- No land disturbing activities shall not commence until approval to do so has been received by governing authorities, in addition to, no land clearing or grading shall begin until all perimeter erosion and sediment control measures have been installed. (including storm water pollution prevention plan per the development criteria.)
- If any additional soil erosion measures are deemed necessary by the City Engineer or his representative. These measures must be immediately implemented by the contractor.
- The general contractor shall strictly adhere to the storm water pollution prevention plan (swppp) during construction operations.
- All exposed areas shall be seeded as specified within 14 days of final grading.
- Should construction stop for longer than 14 days, the site shall be seeded as specified.
- Sediment and erosion control measures shall be inspected at least once every seven (7) days and within 24 hours of a rainfall exceeding 0.5 inches during a 24-hour period or more frequently if required by governing NPDES general permit. All maintenance required by inspection shall commence within 24 hours and be completed within 48 hours of report.
- This plan shall not be considered all inclusive as the general contractor shall take all necessary precautions to prevent soil sediment from leaving the site.
- General contractor shall comply with all state and local ordinances that apply.
- Additional erosion and sediment control measures will be installed if deemed necessary by on site inspection.
- General contractor shall be responsible to take whatever means necessary to establish permanent soil stabilization.
- All erosion and sediment control practices shall be maintained and repaired as needed to ensure effective performance of the required erosion control measures.
- All erosion and sediment control work shall conform to the I.D.O.T. Manual for, standards and procedures for erosion control.
- All construction will adhere to the requirements set forth in the IEPA's new construction site activities national pollutant discharge elimination system (NPDES) storm water permit.
- Contractor to remove all debris spilled into the R.O.W. at the end of each work day. Contractor shall also maintain and sweep debris off all access drives, roadways, bike paths, and other disturbed areas at the end of each construction day.
- All disturbed areas shall be stabilized within 7 days of active disturbance.
- All erosion control measures shall be disposed of within 30 days of final stabilization of the site.
- Ground cover for 5:1 slopes or greater shall be established as soon as possible.
- All disturbed areas to be restored w/ 4" topsoil resread & hydroseeded unless otherwise noted on plans
- Utilize hydroseeded on all slopes of 5:1 or greater.
 - *Mulch/hydroseed per I.D.O.T. Manual, section 251, standard specifications for road and bridge construction, (latest edition)
 - *Mulch/hydroseed method 4
- No dimensions shall be assumed by scaling.
- No known drain tiles are present on the proposed development, if tiles are encountered during construction please notify the engineer immediately.
- No part of the proposed project is located within a flood hazard 10-100yr area a flood hazard area
- General contractor shall notify all utility companies having underground utilities on site or in right-of-way prior to excavation. Contractor shall contact utility locating company and locate all utilities prior to grading start.

CONSTRUCTION SEQUENCE

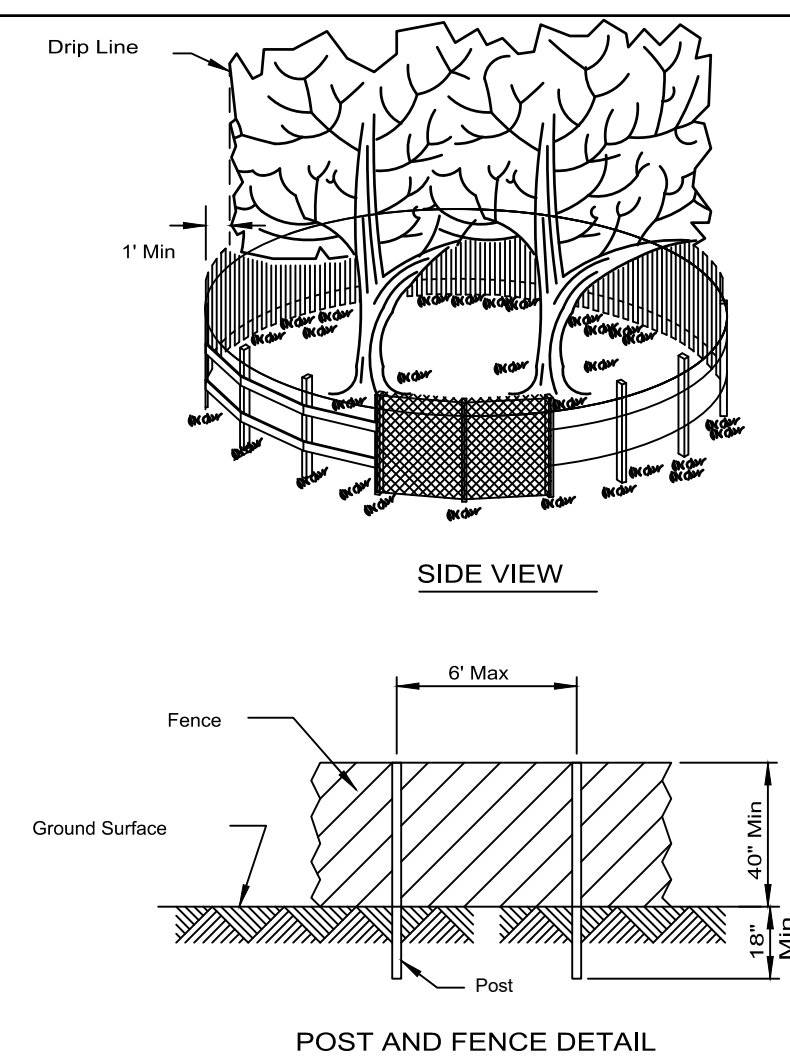
- Install temporary erosion control silt fence in the specified locations.
- City inspection and signoff.
- Clearing & grubbing if applicable.
- Install underground utilities.
- City inspection and signoff.
- Add additional soil erosion and sediment control as needed. In particular the CLSO requirement for stabilization within 14 days of temporary or permanent cessation of grading must be met and will be vigorously enforced by the City.
- Re-disturbed pervious areas to restore infiltration prior to topsoil placement and vegetation.
- Permanent site stabilization.
- City inspection.

RESTORATION NOTE:

ALL DISTURBED AREAS ABOVE TRENCH SHALL BE RESTORED WITH 4" OF TOPSOIL. ALL OTHER DISTURBED AREAS SHALL BE TOP DRESSED WITH 2" OF TOPSOIL. ALL AREAS SHALL BE HYDROSEED (MULCH METHOD 4) PER IDOT'S STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, CURRENT EDITION. IDOT TYPE 2A SALT TOLERANT TURF SEED MIX SHALL BE UTILIZED.



TREE PROTECTION - FENCING



NOTES:

- The fence shall be located a minimum of 1 foot outside the drip line of the tree to be saved and in no case closer than 5 feet to the trunk of any tree.
- Fence posts shall be either standard steel posts or wood posts with a minimum cross sectional area of 3.0 sq. in.
- The fence may be either 40" high snow fence, 40" plastic web fencing or any other material as approved by the engineer/inspector.

REFERENCE:

Project _____

Design _____

Checked _____

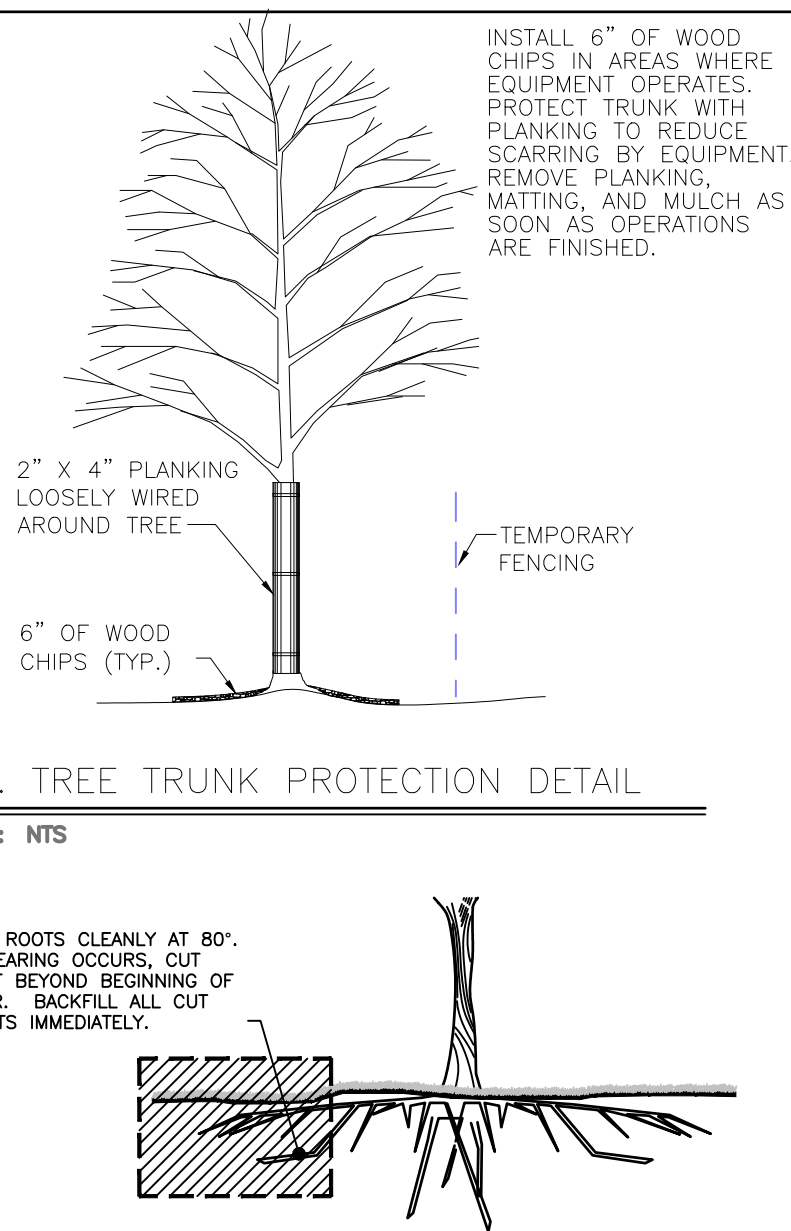
Approved _____



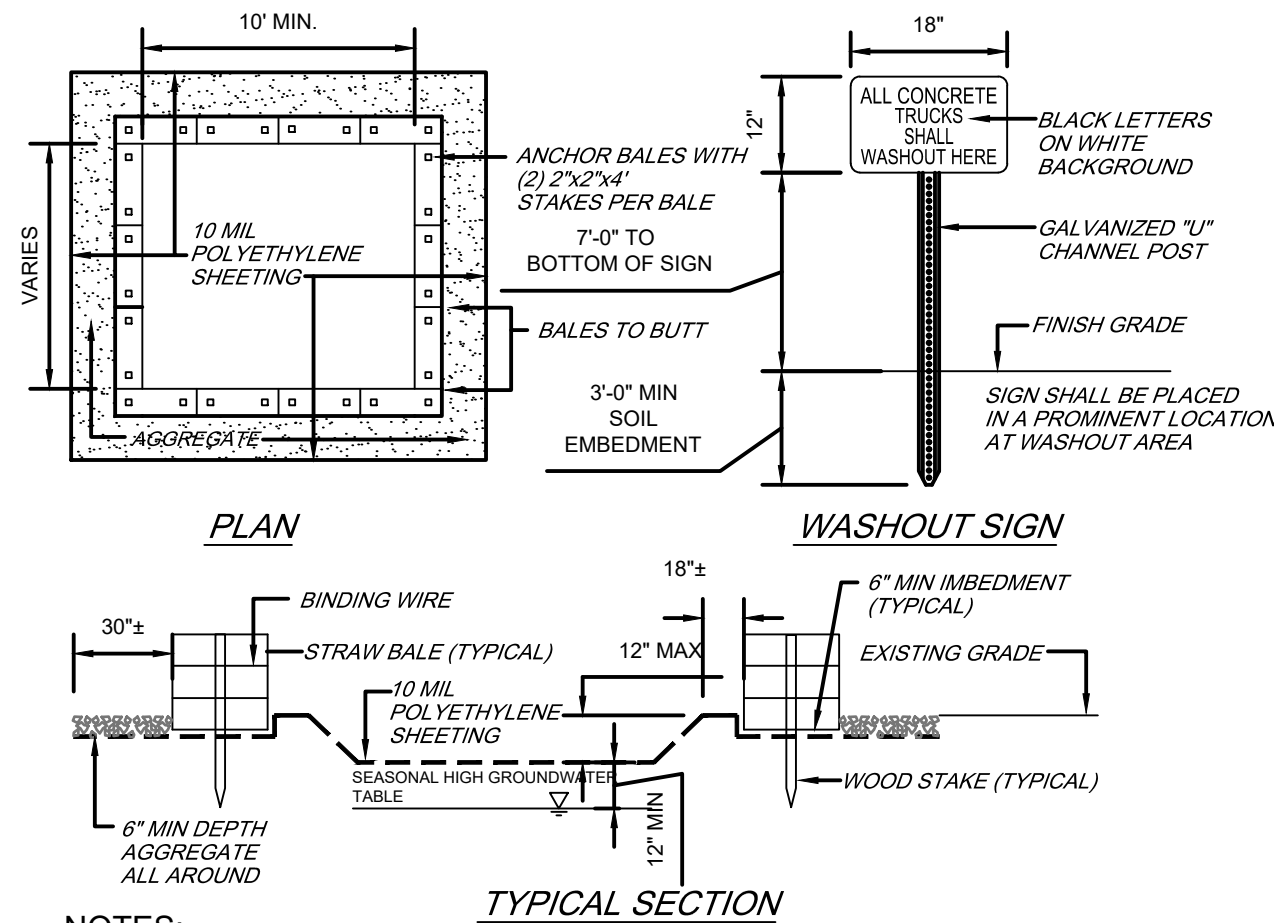
STANDARD DWG. NO. IL-690

SHEET 1 OF 1

DATE 6-7-94



CONCRETE WASHOUT AREA



NOTES:

- CONTAINMENT MUST BE STRUCTURALLY SOUND AND LEAK FREE AND CONTAIN ALL LIQUID WASTES.
- CONTAINMENT DEVICES MUST BE OF SUFFICIENT QUANTITY OR VOLUME TO COMPLETELY CONTAIN THE LIQUID WASTES GENERATED.
- WASHOUT MUST BE CLEANED OR NEW FACILITIES CONSTRUCTED AND READY TO USE ONCE WASHOUT IS 75% FULL.
- WASHOUT AREA(S) SHALL BE INSTALLED IN A LOCATION EASILY ACCESSIBLE BY CONCRETE TRUCKS.
- ONE OR MORE AREAS MAY BE INSTALLED ON THE CONSTRUCTION SITE AND MAY BE RELOCATED AS CONSTRUCTION PROGRESSES.
- AT LEAST WEEKLY REMOVE ACCUMULATION OF SAND AND AGGREGATE AND DISPOSE OF PROPERLY.

GENERAL SITE-WORK:

- Pre-Construction meeting shall be conducted with City Staff and all Contractors prior to commencing any grading or underground utility construction activities (schedule meeting with the Community Development Department at 815-356-3605).
- 24-hour Emergency contact numbers shall be provided to City Staff at the Pre-Construction meeting.
- Working hours shall be limited to the hours of 7:00 a.m. and 7:00 p.m. on weekdays only (except in cases of emergency). Non-emergency work on weekends or holidays is not permitted per City Code except under written permission from the City Engineer. The owner is responsible for the City Inspector cost of overtime inspection beyond the normal eight (8) hour day, including weekends and holidays.
- Public/private streets shall be kept free of dirt and debris with regular clearing, sweeping, and scraping conducted by the Contractor. Junk and debris shall not be allowed to accumulate, blow, or scatter onto streets or adjacent properties.
- JULIE shall be contacted for utility locations on-site and in the adjacent rights-of-way.
- Contractor shall provide and maintain fencing, barricades, traffic control signs, and other safeguarding measures during the course of all work to protect the public from the construction operations.
- Maintain access to adjacent streets during construction. No closing of streets unless approval is first obtained from the agency with jurisdiction (City of Crystal Lake, McHenry County Department of Transportation, Illinois Department of Transportation, etc).
- Any damage to public right-of-way, public utilities, streets, curb, etc, shall be repaired/replaced as soon as possible and as directed by the City Engineer.
- The contractor shall give the City of Crystal Lake, Illinois Department of Transportation, and any other governmental agency having jurisdiction, at least two (2) working days notice excluding Saturday and Sunday prior to the initiation of any phase of construction. Contractor shall immediately notify if construction has ceased and renew the two (2) working day notification thereafter.
- The Contractor shall be responsible for obtaining all required permits for construction prior to commencement along or across existing streets or highways. The Contractor shall make arrangements for the proper bracing, shoring and other protection of all roadways before construction begins.

GRADING:

- The grading and construction of the site improvements shall not cause ponding of storm sewer water. All areas adjacent to these Improvements shall be graded to allow positive drainage.
- The proposed grading elevations shown on the plans are finished grade. A minimum of six (6) inches of topsoil is to be placed before finished grade elevations are achieved.
- Embankment material within parkway and open space areas shall be compacted to a minimum of ninety percent (90%) of maximum density in accordance with ASTM Specification D-1557 (modified proctor method), or to such other density as may be determined appropriate by the soils engineer.
- All subgrade material shall have a minimum CBR (California Bearing Ratio) of 3.0 as determined by the soils engineer, or base replacement and pavement design revisions shall be provided which are adequate to obtain equivalent pavement strength.
- Proposed pavement areas, building pads, driveways and sidewalks and yard/open space areas shall be excavated or filled to plus or minus 0.1 foot of design subgrade elevations by the Contractor.
- Any borrow pit locations shall be identified by the Contractor on a copy of the approved site plans and forwarded to the Engineering Division at least 24-hours prior to excavation. Provide backfill compaction reports from a geotechnical engineer and as-built plans to the Engineering Division for any borrow pit area.
- Backfill shall be monitored by a geotechnical engineer on-site with compaction reports forwarded to the Engineering Division for review.
- Water truck shall be on-site at all times during mass-grading operations and be available as needed for the purposes of dust control or at the request of City Staff.
- Use of City fire hydrants is not allowed unless approved (separate from this permit) by the Public Works Department and a hydrant meter and RPZ is obtained from the City of Crystal Lake Water Division (815-356-6141). Only the City of Crystal Lake Water Division may operate valves and hydrants.

Revised:

1. 06/12/2015

2.

3.

4.

Drawing Name

STANDARD NOTES AND SPECIFICATIONS

Drawing Number

GE-02a

Date: 01/30/15

Drawn DD

Checked AW



DRAWN BY: ECH JOB DATE: 2017

APPROVED: JFV JOB NUMBER: 160386

CAD DATE: 12/6/2017 4:53:33 PM

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NO.	DATE	BY	REVISION DESCRIPTION



ILLINOIS DESIGN FIRM # 184-001322

420 N. FRONT STREET, SUITE 100

McHENRY, ILLINOIS 60050

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McHENRY COUNTY COLLEGE

WATER SERVICE EXTENSION & BOOSTER STATION INSTALLATION

CRYSTAL LAKE, ILLINOIS

CIVIL SITEWORK

EROSION CONTROL NOTES & DETAILS

SHEET NO.

C-06

FOR PERMIT/BID

GE-02b

TOPSOIL STOCKPILING:

1. Location of any on-site topsoil stockpiles shall be identified on the approved plans with silt fence installed around the perimeter of the stockpile.

2. Topsoil stockpiled for future use shall be relatively free from large roots, sticks, weeds, brush, stones larger than one (1) inch diameter, or other litter and waste products including other extraneous materials not conducive to plant growth.

3. Topsoil shall be stockpiled in sequence to eliminate any re-handling or double movements by the Contractor. Failure to properly sequence the stockpiling operations shall not constitute a claim for additional compensation. No material shall be stockpiled in front yards, in utility easements, or in the right-of-way lines.

4. If a stockpile is to remain in place for more than (14) calendar days, it is required that the stockpile meet the requirements as outlined in Section 555 of the City Code.

EROSION CONTROL:

1. All specified erosion control measures shall be installed and maintained per the requirements of the Crystal Lake Stormwater Ordinance in accordance with the active NPDES permit.

2. All slopes 4:1 or steeper shall be sodded or blanketed immediately after mass earthwork.

3. All overland flow routes to be stabilized by sod or blanket.

4. Erosion control measures to be inspected and approved by City Engineering Division prior to additional work on site.

5. Continuous monitoring of erosion control measures is required. Maintain records of weekly reports per the City of Crystal Lake Stormwater Ordinance.

6. The Contractor shall implement any additional erosion control measures deemed necessary by the City per the standards of the City of Crystal Lake Stormwater Ordinance.

7. All storm sewer catch basins, sumps and/or retention basins provided are to be cleaned at the end of construction of the project prior to final acceptance. Cleaning may also be required during the course of the construction of the project if it is determined that the silt and debris traps are not properly functioning and their performance is impaired.

8. Rip-rap material RR 2 (6") - RR4 (16") shall be in accordance with Article 281 and grouted in place according to Article 601 of the IDOT Standard Specifications.

9. Projects of 1 Acre or greater must obtain an NPDES permit prior to commencement of any construction activity.

UNDERGROUND UTILITY:

1. The Contractor shall coordinate water main, water service, sanitary and storm sewer inspections and testing with the Community Development at least 24 hours in advance.

2. All main line sanitary shall be cleaned and televised (provide DVD to the City's Engineering Division).

3. All manhole or valve covers shall be imprinted "City of Crystal Lake Sanitary", or "City of Crystal Lake Storm", or "City of Crystal Lake Water" as directed by the City.

4. Reference the latest edition of the Standard Specifications for Water and Sewer Main Construction in Illinois.

5. Existing manholes to be circular cored and booted.

Revised:

1. 06/12/2015

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3.

4.

Drawing Name

STANDARD NOTES AND SPECIFICATIONS

Drawing Number

GE-02b

Date:

01/30/15

Drawn

DD

Checked

AW

City of Crystal Lake

Illinois

ENGINEERING AND BUILDING ENGINEERING DETAILS AND STANDARDS

GE-02d

PAVING:

1. All subgrades and bases shall be proof-rolled and approved by the Engineering Division prior to base or binder installation.

2. Subgrade and proposed pavements shall be finished by the Excavation Contractor to within 0.1 foot plus or minus, of plan elevation.

3. The Paving Contractor shall ensure that the subgrade has been properly prepared and that the finished top of subgrade elevation has been graded within the tolerances allowed in these specifications. Unless the Paving Contractor advises the owner and engineer in writing prior to the grading for base course construction, it is understood that the Contractor has approved and accepts responsibility for the subgrade.

4. For the purpose of providing handicap accessibility and complying with the American Disability Act and City Standards, curbs shall be depressed at locations where public walks or pedestrian paths intersect curb lines at street intersections and other locations as directed.

5. 1/2 inch thick premolded fiber expansion joints with two (2) No. 4 plain round steel dowel bars shall be installed at designated intervals and at all P.C., P.T., curb returns and at the end of each pour. Alternate ends of the dowel bars shall be grouted and fitted with metal expansion tubes.

6. 1/2 inch thick fiber expansion joints shall be used in every case where the sidewalk coincides with the curb and gutter. Contraction joints shall be saw cut at designated intervals in the curb. The cost of these joints shall be considered as incidental to the cost of the contract.

7. All poured in place concrete curb and gutter shall incorporate two (2) No. 4 reinforcing bars installed wherever the curb and gutter crosses utility service lines, the cost of which shall be considered incidental to the cost of concrete curb and gutter.

8. Sidewalks (where required) shall be of the thickness and dimensions as shown in the construction plans. All sidewalk concrete shall be a minimum of 6.1 bag mix (or IDOT class SI concrete) and shall develop a minimum of 3,500 psi compressive strength at fourteen (14) days. Contraction joints shall be set at five (5) foot centers, and one-half inch (1/2 inch) premolded fiber expansion joints at fifty (50) foot centers and where the sidewalk meets the curb or another sidewalk, or at the end of each pour. All sidewalks constructed over utility trenches and/or abutting driveway aprons shall be reinforced with three (3) No. 4 reinforcing bars (10 foot minimum length).

Revised:

1. 06/12/2015

2.

3.

4.

Drawing Name

STANDARD NOTES AND SPECIFICATIONS

Drawing Number

GE-02d

Date:

01/30/15

Drawn

DD

Checked

AW

City of Crystal Lake

Illinois

ENGINEERING AND BUILDING ENGINEERING DETAILS AND STANDARDS

RD-06

PAVEMENT CUT AND REPLACEMENT

1. PAVEMENT EDGE MUST BE SAWCUT

2. REPLACE SURFACE W/ EXISTING DEPTH

3. STEEL MESH TO BE PLACED ONLY WITH PCC BASE

4. TRENCH BACK FILL MATERIAL (TBF) TO BE PLACED IN 6" COMPACTED LAYERS. USE CA-6 GRADE 8 OR 9 AGGREGATE. COMPACT TO 90% OF MODIFIED PROCTOR.

5. UNDISTURBED GROUND

6. ALL PIPES WILL HAVE A MIN. 4" CA-6 BEDDING

7. LEGEND:
1. TEMPORARY STREET PATCHES DURING WINTER CONSTRUCTION SHALL BE 4" P.C. CONCRETE, IDOT CLASS SI OR A MIN. 3" OF UPM (COLD PATCH). PERMANENT PATCHES SHALL BE COMPLETED AS SOON AS POSSIBLE IN THE SPRING.
2. LHM BASE COURSE MUST BE AUTHORIZED BY THE CITY ENGINEER.
3. FOR CERTAIN UTILITY STREET CUTS, THE CITY ENGINEER MAY AUTHORIZE OR REQUIRE THE USE OF A CONTROLLED LOW-STRENGTH MATERIAL (CLSM) AS PER THE IDOT SPECIAL PROVISIONS.

Revised:

1. 06/12/2015

2.

3.

4.

Drawing Name

PAVEMENT CUT AND REPLACEMENT

Drawing Number

RD-06

Date:

05/19/2015

Drawn

JH

Checked

AW

City of Crystal Lake

Illinois

ENGINEERING AND BUILDING ENGINEERING DETAILS AND STANDARDS

UG-03

TYPICAL TRENCH CROSS SECTION

LEGEND:

1. TRENCH BACKFILL TO SUBGRADE AND WITHIN 2 FEET OF PROPOSED PAVEMENT, DRIVEWAY, CURB AND GUTTER OR SIDEWALK. TRENCH BACKFILL MATERIALS SHALL BE IDOT APPROVED GRADATION CA-6, GRADE 7, 8, OR 9 COMPACTED TO 90% OF MODIFIED PROCTOR DENSITY. IN NON-STRUCTURAL AREAS BACKFILL WITH APPROVED EXCAVATED MATERIALS.

2. INITIAL BACKFILL TO DEPTH AS INDICATED. MATERIAL SHALL BE IDOT APPROVED GRADATION CA-6, GRADE 7, 8, OR 9.

3. PIPE BEDDING SHALL BE FRACTURED GRANULAR MATERIAL IDOT GRADATION CA-7 OR CA-11 FROM 4 INCHES BELOW BOTTOM OF PIPE TO HORIZONTAL CENTER OF PIPE.

4. UNSUITABLE MATERIAL TO BE REMOVED WHERE DIRECTED BY THE ENGINEER AND REPLACED WITH COMPACTED SUITABLE MATERIAL.

5. TRENCH WIDTH: PIPE O.D. + 12 INCHES MINIMUM PIPE I.D. + 18 INCHES MAXIMUM

6. CONTRACTORS SHALL COMPLY WITH ALL CURRENT OSHA STANDARDS.

SECTION A: WATER MAIN DIP

SECTION B: SANITARY SEWER MAIN & SERVICES (PVC)

SECTION C: STORM SEWER (RCP)

NOTE: ALL DUCTILE IRON SHALL BE SUBJECT TO POLY WRAP PER CITY ENGINEER

Revised:

1. 06/12/2015

2.

3.

4.

Drawing Name

TYPICAL TRENCH CROSS SECTION

Drawing Number

UG-03

Date:

05/29/2015

Drawn

JH

Checked

AW

City of Crystal Lake

Illinois

ENGINEERING AND BUILDING ENGINEERING DETAILS AND STANDARDS

UG-04a

WATER AND SEWER SEPARATION REQUIREMENTS

EXISTING WATER MAIN BELOW PROPOSED SEWER LINE WITH 18" MINIMUM SEPARATION.

NOTE: CLASS IV MATERIAL TO BE COMPACTED TO 95% OF STANDARD PROCTOR MAXIMUM DENSITY. WATER MAIN TRENCH (SEE NOTE 3a)

OR CASING (SEE NOTE 3b)

SEE NOTE 2

SEE NOTE 5

15" MIN.

SEE NOTE 1

EXISTING WATER MAIN

GUIDELINES

1. IF THE SELECT GRANULAR BACKFILL EXISTS: REMOVE WITHIN WIDTH OF PROPOSED SEWER TRENCH AND REPLACE WITH SELECT EXCAVATED MATERIAL (CLASS IV) AND COMPACT.

2. OMIT SELECT GRANULAR CRADLE AND GRANULAR BACKFILL TO ONE (1) FOOT OVER TOP 10 FEET OF EITHER SIDE OF THE WATER MAIN.

3a. CONSTRUCT 10 FEET OF PROPOSED SEWER OF WATER MAIN MATERIAL AND PRESSURE TEST, OR

3b. USE 10 FEET OF CASING FOR PROPOSED SEWER AND SEAL ENDS OF CASING.

4. POINT LOADS SHALL NOT BE ALLOWED BETWEEN SEWER OR SEWER CASING AND WATER MAIN

5. PROVIDE ADEQUATE SUPPORT FOR EXISTING WATER MAIN TO PREVENT DAMAGE DUE TO SETTLEMENT OF SEWER TRENCH.

PROPOSED WATER MAIN ABOVE EXISTING SEWER LINE WITH 18" MINIMUM SEPARATION.

NOTE: CLASS IV MATERIALS SHALL BE COMPACTED TO 95% OF STANDARD PROCTOR DENSITY.

SEE NOTE 2

18" MIN.

SEE NOTE 1

EXISTING SEWER LINE

GUIDELINES

1. IF THE SELECT GRANULAR BACKFILL EXISTS: REMOVE WITHIN WIDTH OF PROPOSED SEWER TRENCH AND REPLACE WITH SELECT EXCAVATED MATERIAL (CLASS IV) AND COMPACT.

2. OMIT SELECT GRANULAR CRADLE AND GRANULAR BACKFILL TO ONE (1) FOOT OVER TOP 10 FEET ON EITHER SIDE OF THE WATER MAIN.

3. POINT LOADS SHALL NOT BE ALLOWED BETWEEN SEWER OR SEWER CASING AND WATER MAIN

4. USE A CASING FOR PROPOSED WATER MAIN AND SEAL ENDS OF CASING.

Revised:

1. 06/12/2015

2.

3.

4.

Drawing Name

WATER AND SEWER SEPARATION REQUIREMENTS

Drawing Number

UG-04a

Date:

04/15/2007

Drawn

EM

Checked

AW

City of Crystal Lake

Illinois

ENGINEERING AND BUILDING ENGINEERING DETAILS AND STANDARDS

UG-04b

WATER AND SEWER SEPARATION REQUIREMENTS

PROPOSED WATER MAIN ABOVE EXISTING SEWER LINE WITH 18" MINIMUM SEPARATION.

NOTE: CLASS IV MATERIALS SHALL BE COMPACTED TO 95% OF STANDARD PROCTOR DENSITY.

18" MIN.

EXISTING SEWER LINE

GUIDELINES

1. IF THE SELECT GRANULAR BACKFILL EXISTS: REMOVE WITHIN WIDTH OF PROPOSED SEWER TRENCH AND REPLACE WITH SELECT EXCAVATED MATERIAL (CLASS IV) AND COMPACT.

2. OMIT SELECT GRANULAR CRADLE AND GRANULAR BACKFILL TO ONE (1) FOOT OVER TOP 10 FEET ON EITHER SIDE OF THE WATER MAIN.

3. PROVIDE ADEQUATE SUPPORT FOR EXISTING SEWER LINE TO PREVENT DAMAGE DUE TO SETTLEMENT.

PROPOSED WATER MAIN BELOW EXISTING SEWER LINE WITH 18" MINIMUM SEPARATION.

NOTE: CLASS IV MATERIALS SHALL BE COMPACTED TO 95% OF STANDARD PROCTOR DENSITY.

18" MIN.

EXISTING WATER MAIN

GUIDELINES

1. PROVIDE ADEQUATE SUPPORT FOR EXISTING WATER MAIN TO PREVENT DAMAGE DUE TO SETTLEMENT OF SEWER TRENCH.

2. MAINTAIN 18" MINIMUM VERTICAL SEPARATION FOR 10 FEET HORIZONTALLY.

Revised:

1. 06/12/2015

2.

3.

4.

Drawing Name

WATER AND SEWER SEPARATION REQUIREMENTS

Drawing Number

UG-04b

Date:

04/15/2007

Drawn

EM

Checked

AW

City of Crystal Lake

Illinois

ENGINEERING AND BUILDING ENGINEERING DETAILS AND STANDARDS

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JOB DATE: 2017

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APPROVED: JFV

JOB NUMBER: 160386

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McHenry County College

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CRYSTAL LAKE, ILLINOIS

McHENRY COUNTY COLLEGE

WATER SERVICE EXTENSION & BOOSTER STATION INSTALLATION
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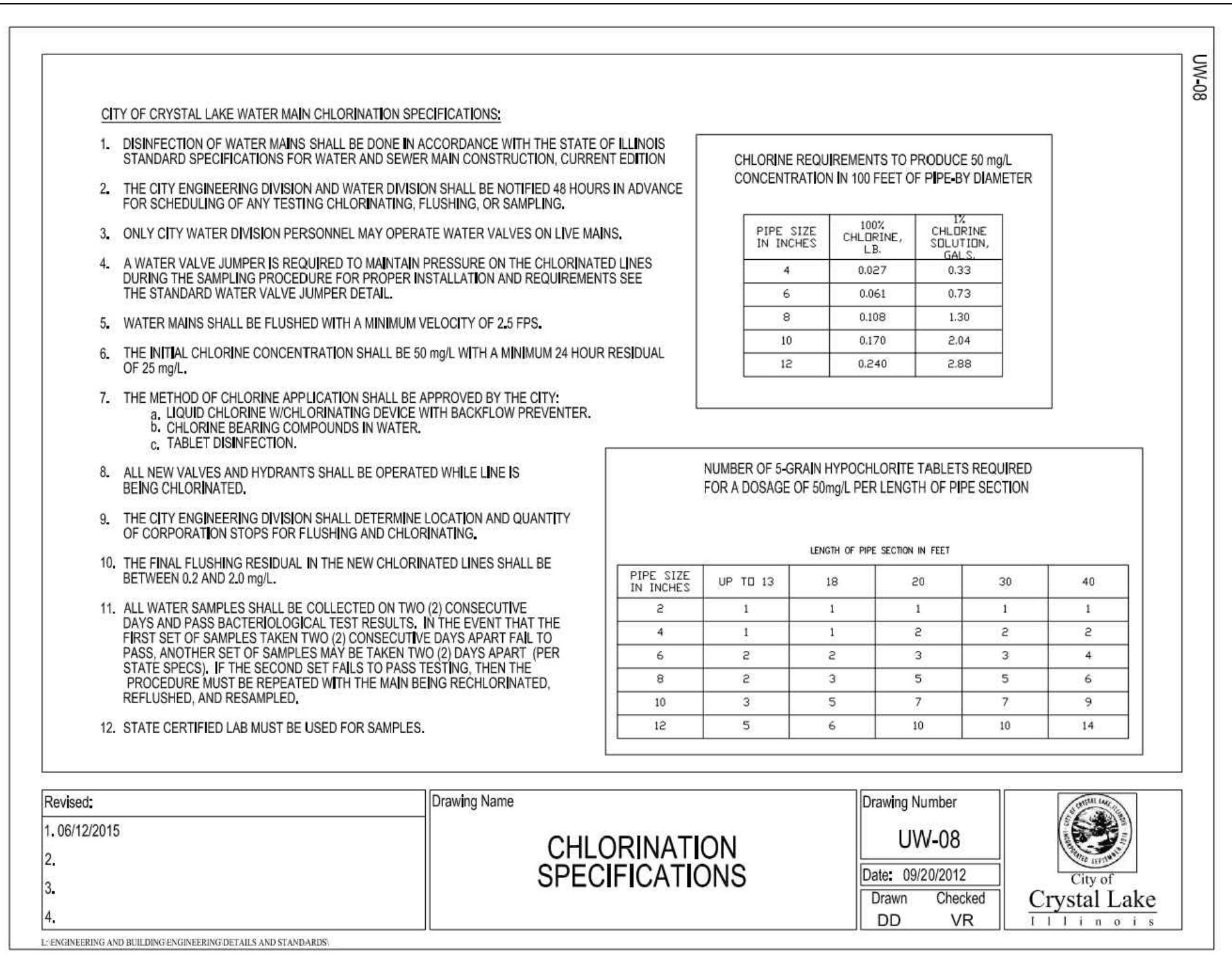
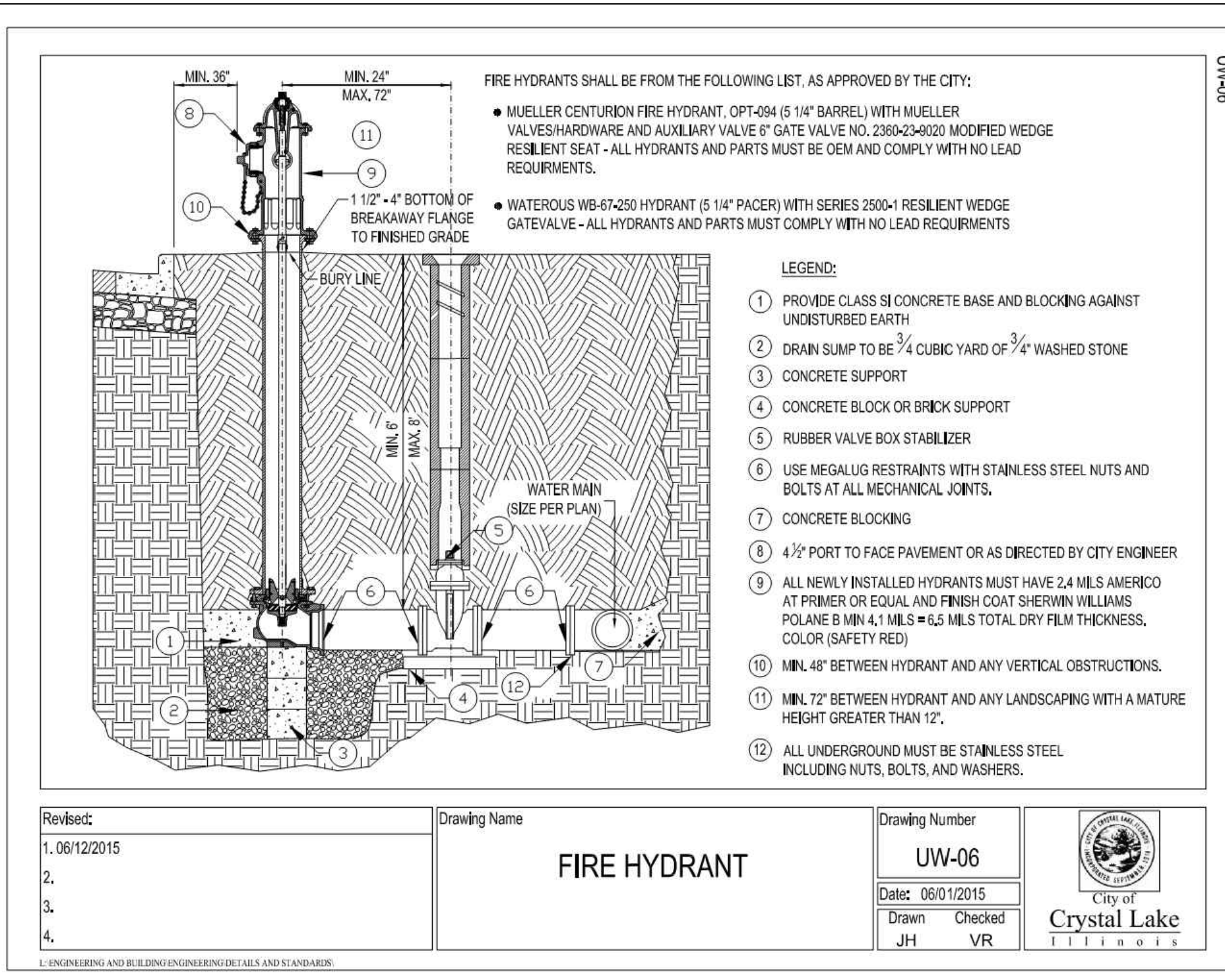
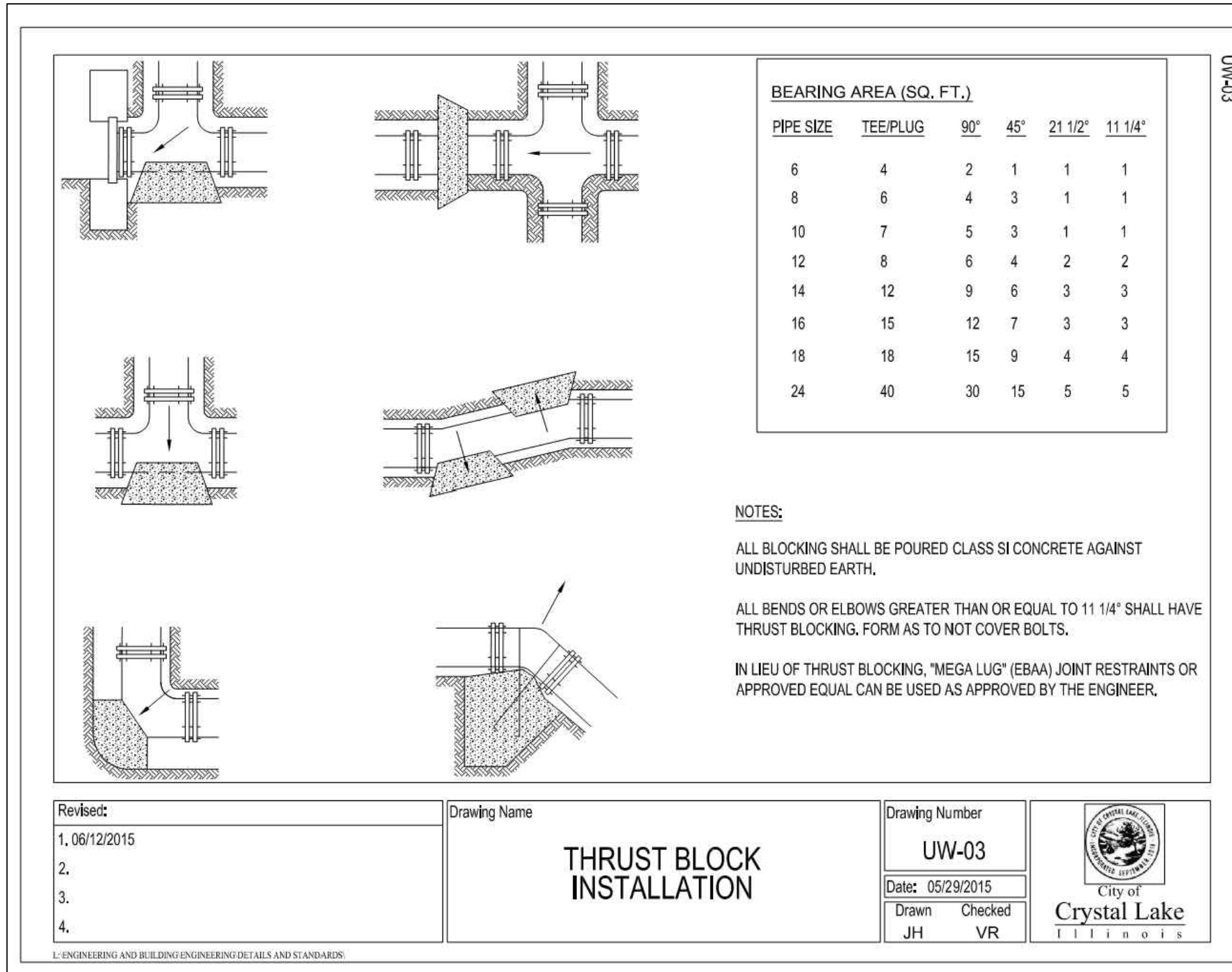
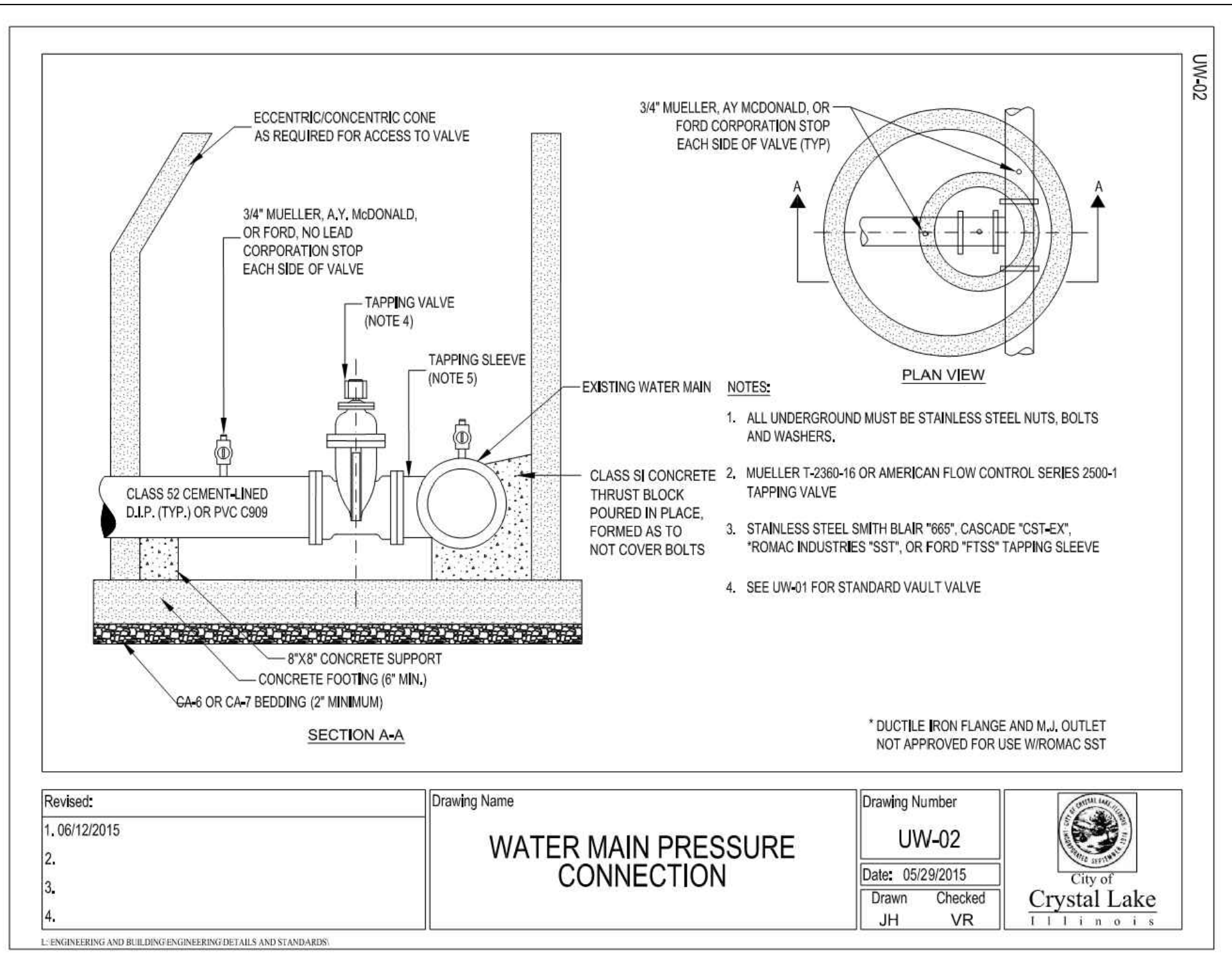
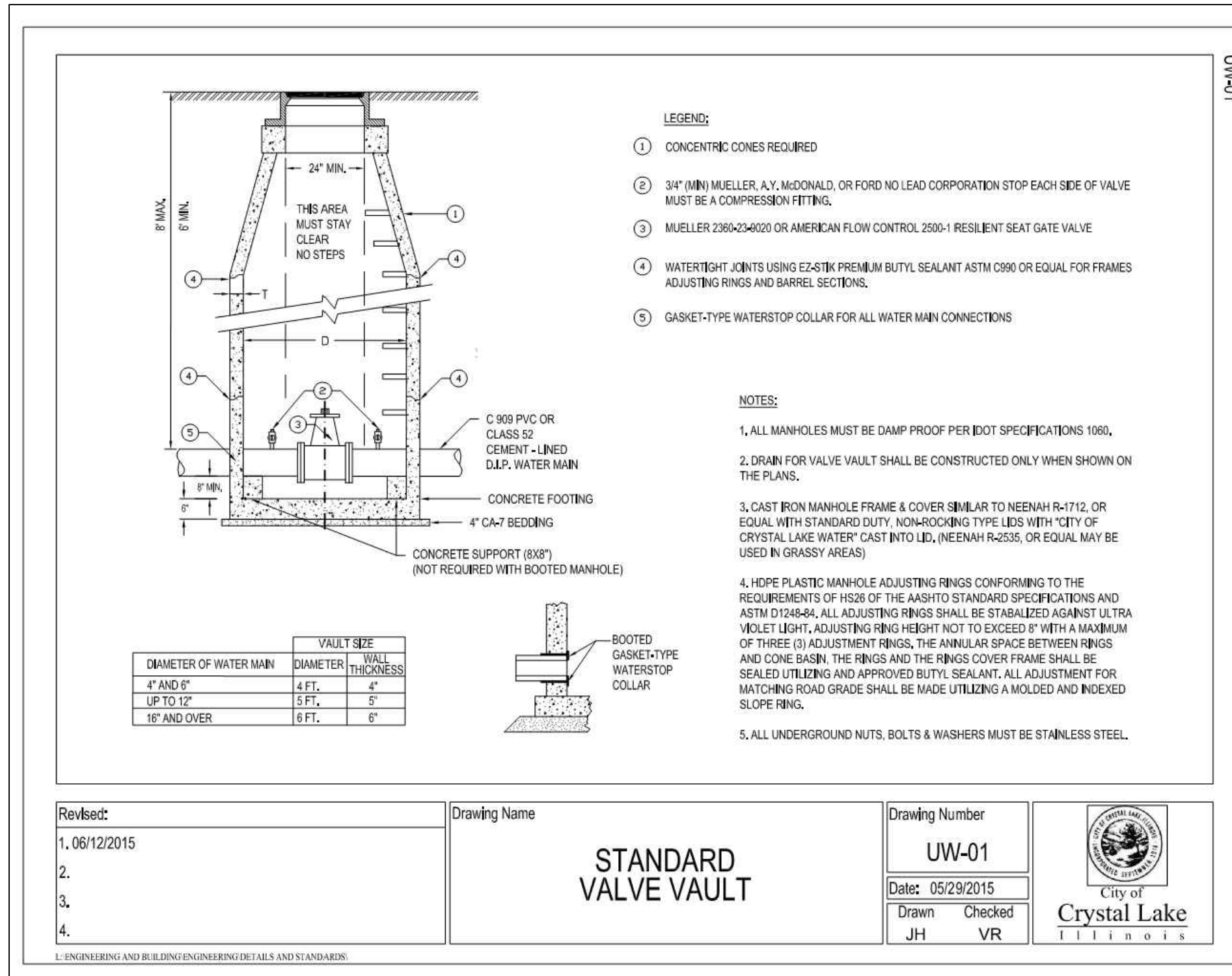
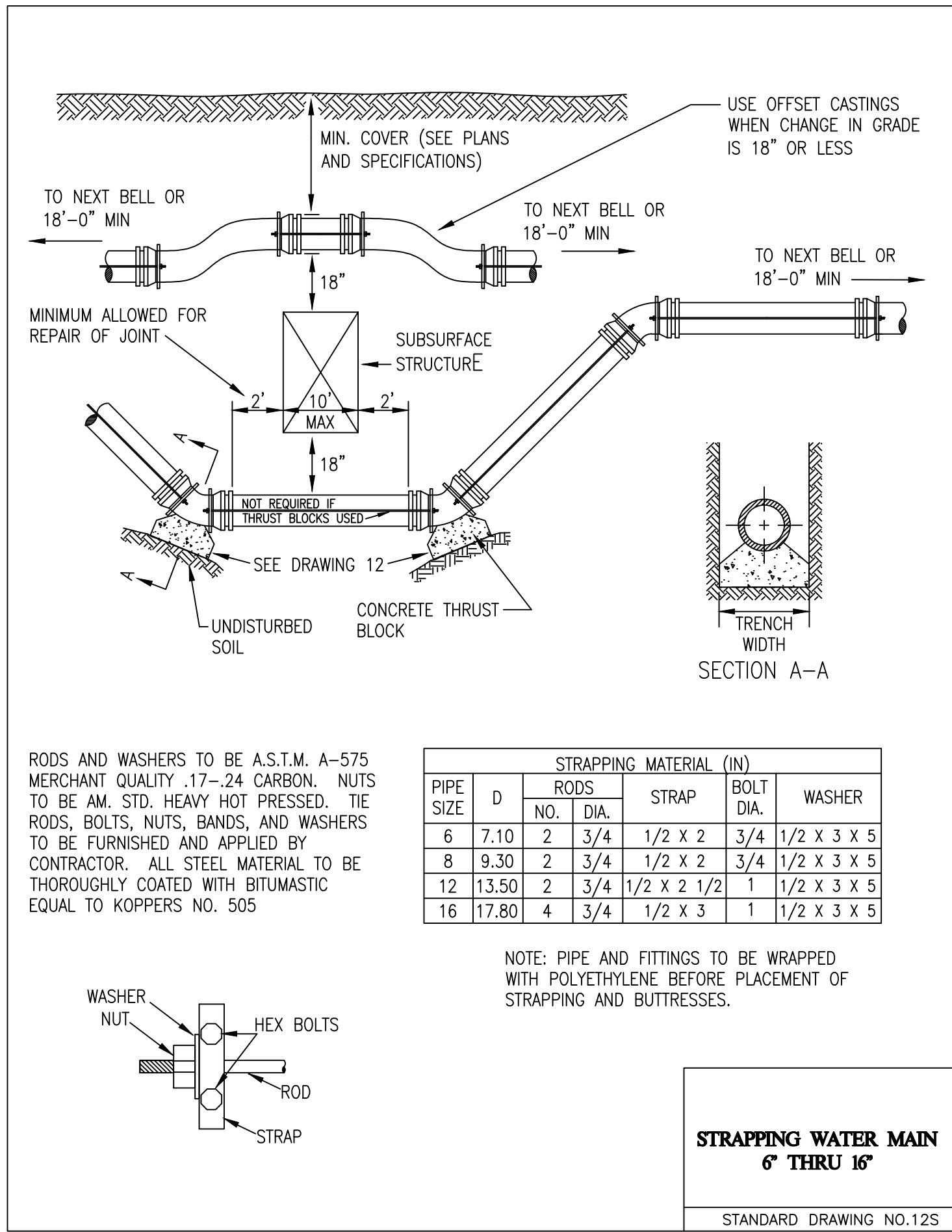
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STANDARD CONSTRUCTION DETAILS

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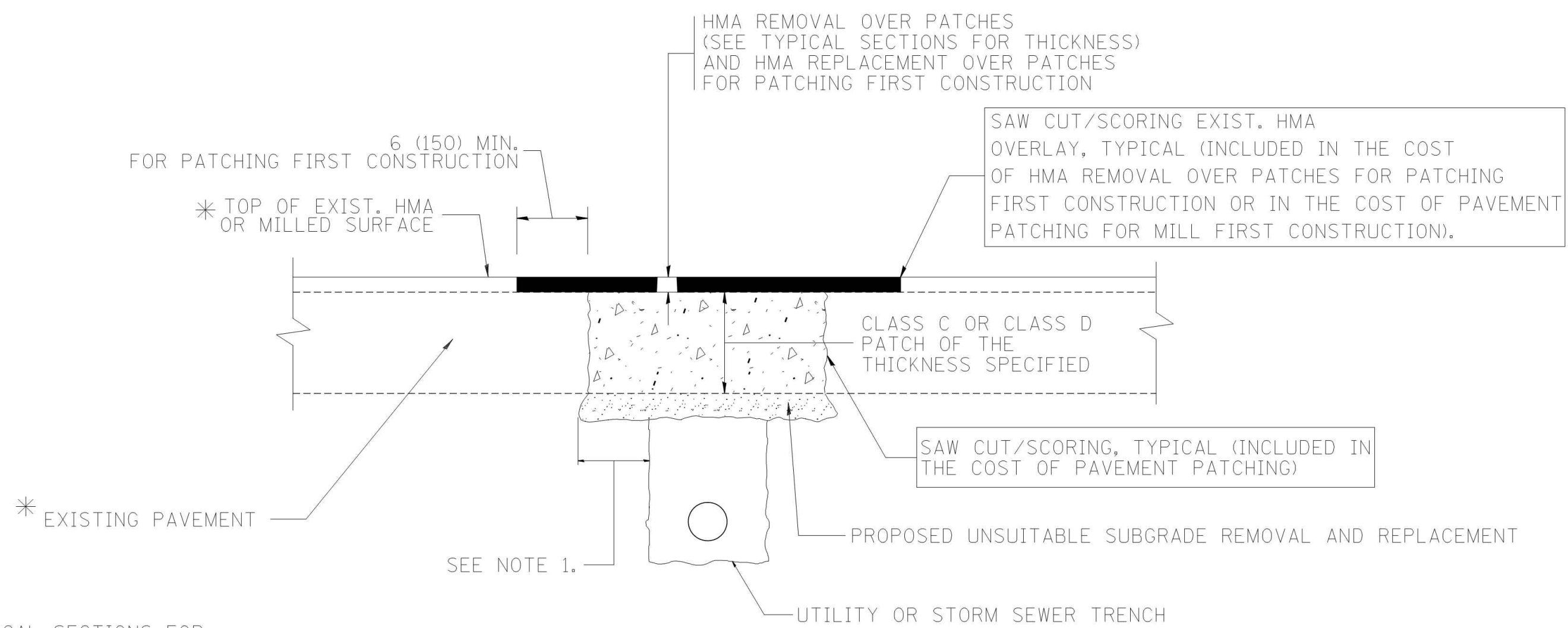
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CIVIL SITEWORK
 STANDARD CONSTRUCTION DETAILS

SHEET NO.
 C-08



* SEE TYPICAL SECTIONS FOR THICKNESS AND MATERIALS

NOTES:

1. THE WIDTH OF THE FULL DEPTH PATCH OVER A TRENCH SHALL BE 12 (300) WIDER ON EACH SIDE OF THE TRENCH.
2. FOR METHOD OF MEASUREMENT AND BASIS OF PAYMENT, SEE RECURRING SPECIAL PROVISION "PATCHING WITH HOT-MIX ASPHALT OVERLAY REMOVAL".

SEQUENCE OF CONSTRUCTION (PATCHING FIRST)

1. REMOVE THE EXISTING HMA MATERIAL OVER THE AREA TO BE PATCHED.
2. REMOVE AND REPLACE WITH CLASS C OR D PATCH.
3. REPLACE HMA MATERIAL OVER THE AREA TO BE PATCHED.

SEQUENCE OF CONSTRUCTION (MILLING FIRST)

1. MILL HMA FIRST IF THERE IS AT LEAST 4 1/2 INCHES OR MORE OF HMA MATERIAL ON TOP OF THE EXISTING PAVEMENT OR IF THE PAVEMENT IS FULL DEPTH HMA. A MINIMUM OF 2 INCHES OF HMA MATERIAL SHALL BE IN PLACE AFTER MILLING.
2. REMOVE AND REPLACE WITH FULL DEPTH CLASS D PATCHES TO TOP OF MILLED SURFACE.

ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.

FILE NAME: c:\projects\160386\160386.dgn	USER NAME: bmeard	DESIGNED: R. SHAH	REVISED: A. ABBAS 04-27-98	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PAVEMENT PATCHING FOR HMA SURFACED PAVEMENT				DATE: 10-25-94	SECTION: 80400-04 (80-22)	COUNTY: MC HENRY	TOTAL SHEETS: 22
		DRAWN: R. BORO 03-01-07	REVISED: R. BORO 09-04-07		SCALE: NONE	SHEET NO. 1	OF 1	SHEETS	STA. TO STA.			
		CHECKED: R. BORO 09-04-07	REVISED: K. ENG 10-27-08									
		DATE: 10-25-94										

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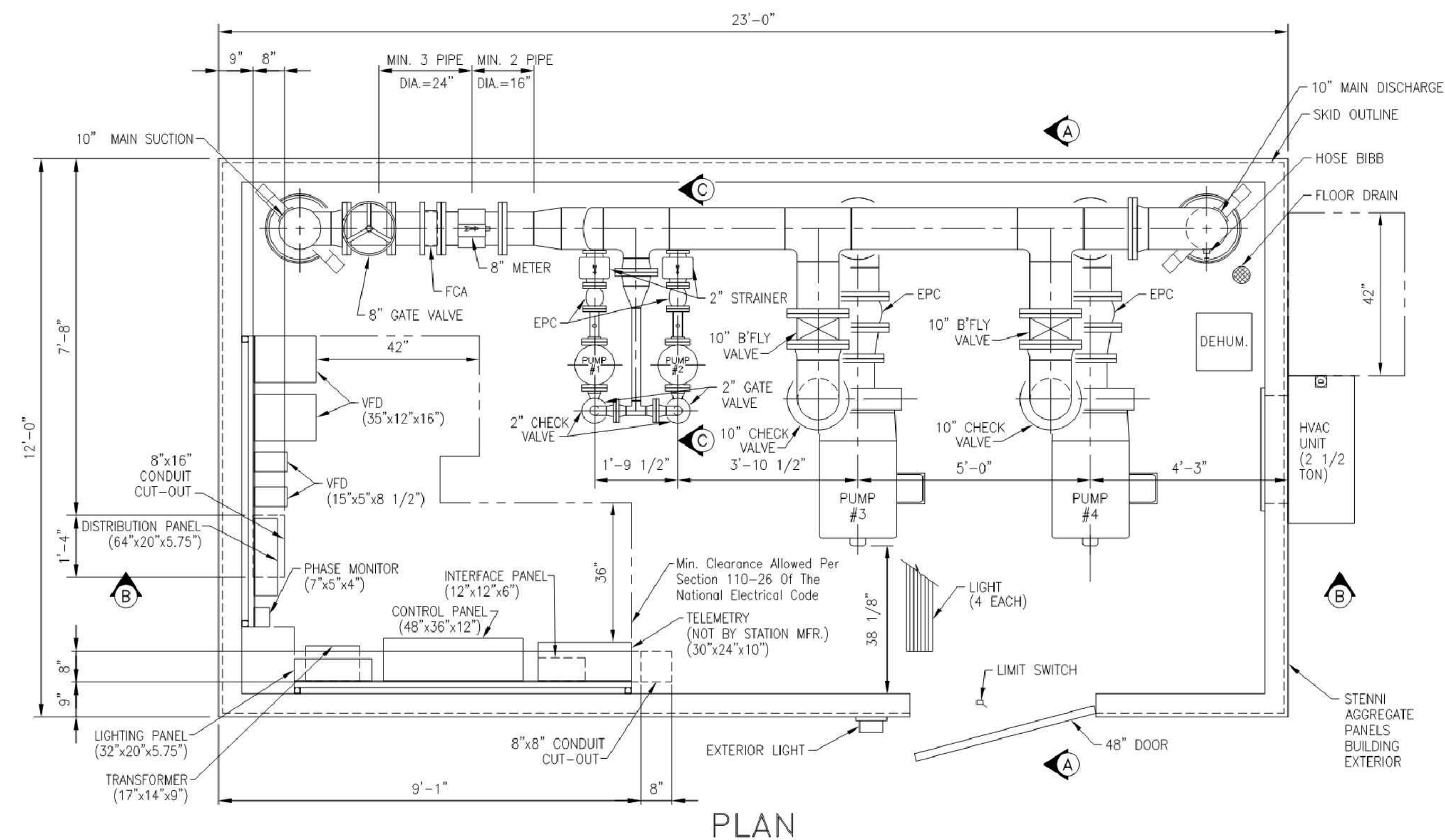
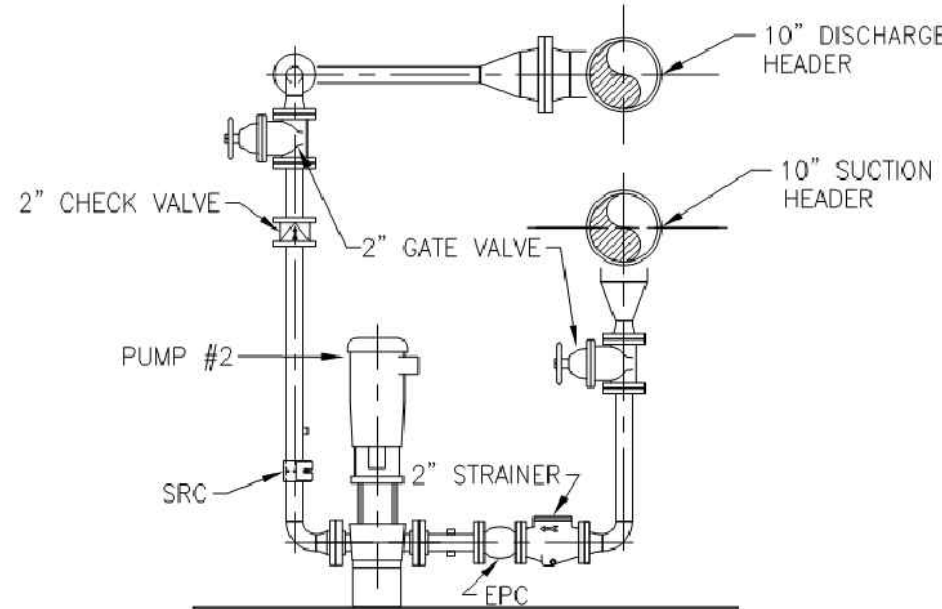
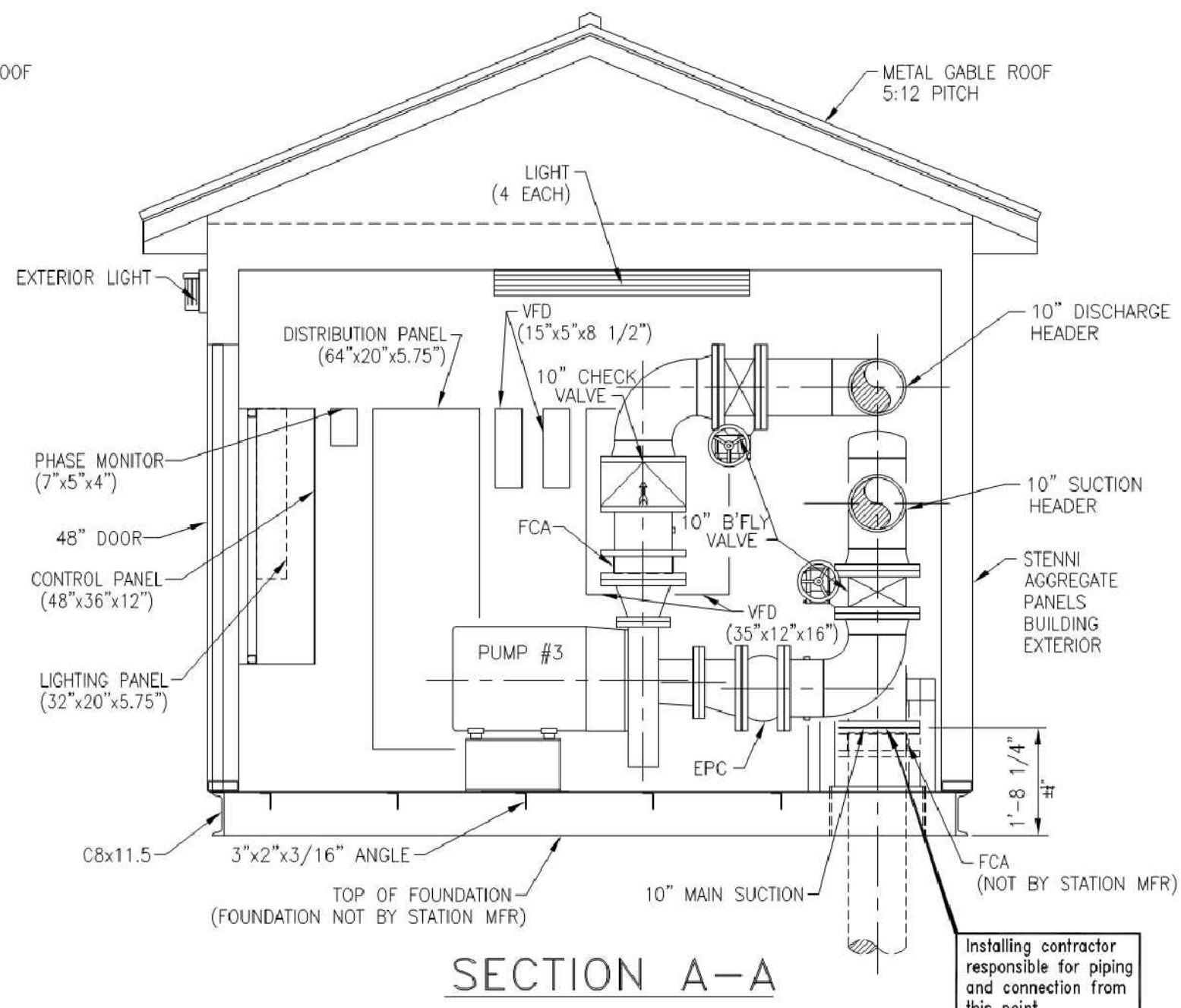
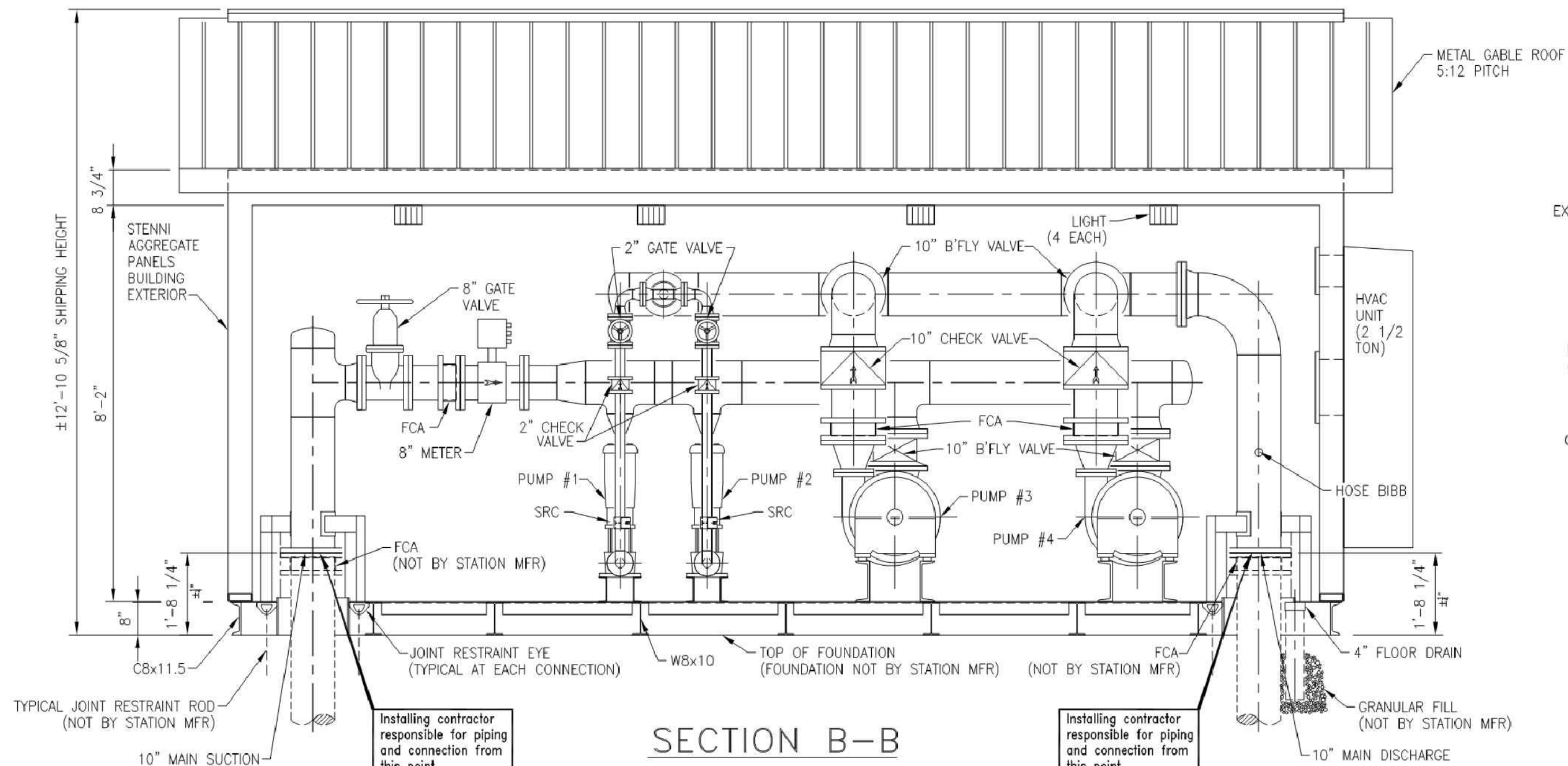
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CIVIL SITEWORK
STANDARD CONSTRUCTION DETAILS

SHEET NO.
C-09

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NOTE: "EXCEPT FOR PIPE END SUPPORTS, WHICH ARE SHOWN, VERTICAL AND ANGLE PIPE BRACES ARE NOT SHOWN FOR DRAWING CLARITY"

GENERAL NOTES

CONTRACTOR'S NOTE:

SCHEDULE 40 STEEL PIPE
MAIN SUCTION:
"10" ANSI STANDARD B16.5, CLASS 150 FLANGE
MAIN DISCHARGE:
"10" ANSI STANDARD B16.5, CLASS 150 FLANGE

ALL PIPING AND EQUIPMENT
WILL BE ADEQUATELY
SUPPORTED AND BRACED

PLATE & STRUCTURAL
STEEL: ASTM A-36
STRUCTURAL TUBING: A500, GRADE B

CONTRACTOR'S NOTES

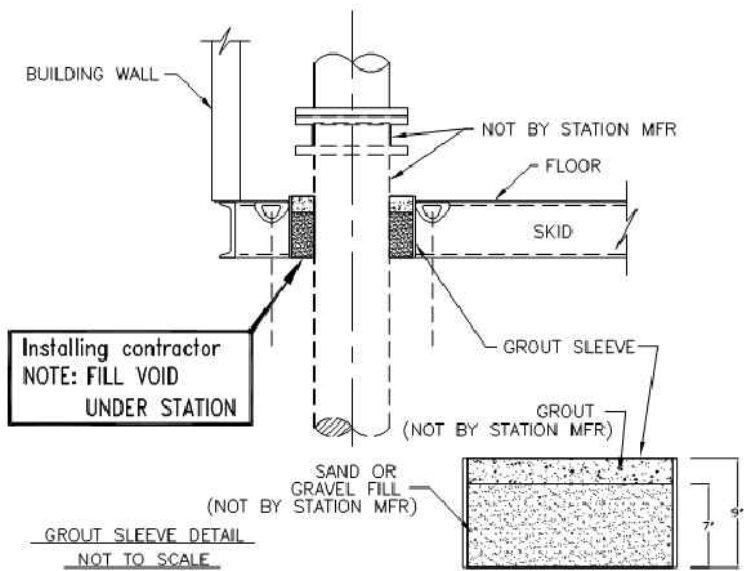
DEHUMIDIFIER MUST
BE POWERED UP AND TURNED ON
IMMEDIATELY AFTER THIS STATION IS
SET IN PLACE.

SHIMS MAY BE REQUIRED AROUND PERIMETER
OF WATERSHED TO ENSURE PROPER LEVEL.
WITHOUT PROPER LEVEL ENGINEERED FLUID
CANNOT BE RESPONSIBLE FOR PROPER DOOR
OPERATION.

PLEASE NOTE ORIENTATION OF THE INLET
AND OUTLET PIPE AND ELECTRICAL CONDUIT
LOCATIONS IN REFERENCE TO THE JOBSITE LAYOUT.
EFI CANNOT BE HELD RESPONSIBLE UNLESS
CONFIRMATION OF THESE ORIENTATIONS IS RECEIVED
THROUGH THE APPROVED SUBMITTALS.

THIS STATION IS NOT DESIGNED TO WITHSTAND
PIPELINE THRUST OR EXTERNAL PIPE RESTRAINT
FORCES. THRUST BLOCKING AND PIPE RESTRAINTS
EXTERNAL TO THE STATION SHALL BE DESIGNED
AND INSTALLED BY OTHERS.

ESTIMATED TOTAL STATION WEIGHT: T.B.D.



Installing contractor
NOTE: FILL VOID
UNDER STATION

GROUT SLEEVE DETAIL
NOT TO SCALE

NOT BY STATION MFR

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DESIGN CRITERIA

Controls: CONSTANT PRESSURE
Power Service: 480 Volts, 3 Phase, 60 Cycle

PUMP DATA

Type: VERTICAL, MULTI-STAGE, CENTRIFUGAL
Pump
1 & 2
Capacity: 75 G.P.M. AT 104 FEET T.D.H.
Size: 2" X 2"
Motor: 5 H.P., 3600 R.P.M.
Type: HORIZ. CLOSED CPLD., END SUCTION
Pump
3 & 4
Capacity: 1500 G.P.M. AT 218 FEET T.D.H.
Size: 5" X 8" X 16"
Motor: 125 H.P., 1800 R.P.M.

NOTE:
THIS PLAN IS FOR REFERENCE ONLY.
REFER TO MANUFACTURER'S DETAILS
FOR INSTALLATION.

REVISION #	DATE	REVISED BY	DESCRIPTION
DESIGNED BY: DD		MECHANICAL CHECKED BY (C.E.):	ELECTRICAL CHECKED BY: JM
DRAWN BY: SM			



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BOOSTER PUMP STATION

McHENRY COUNTY COLLEGE

CRYSTAL LAKE, ILLINOIS

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DRWG. NO. 93361-B-001.

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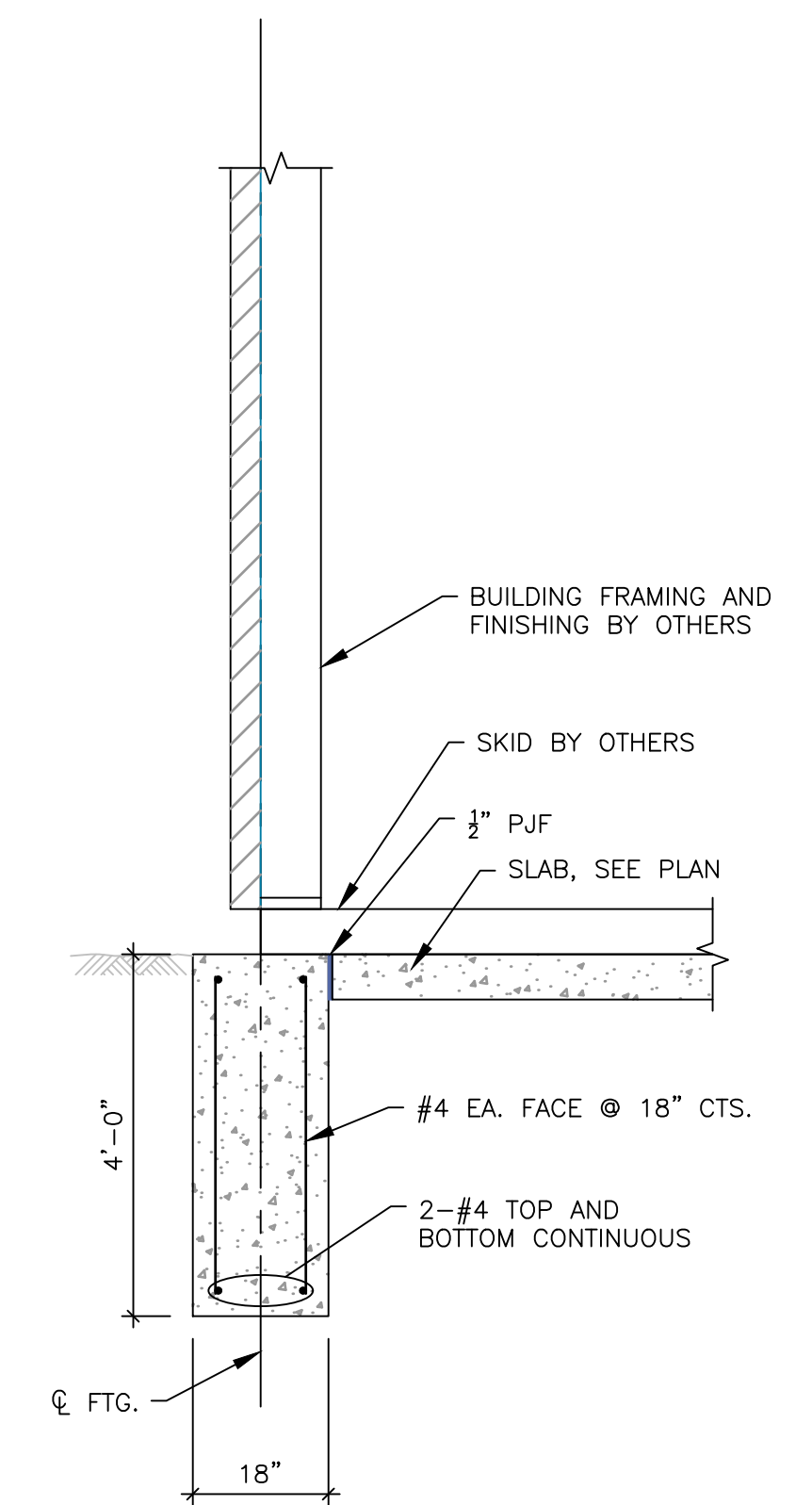
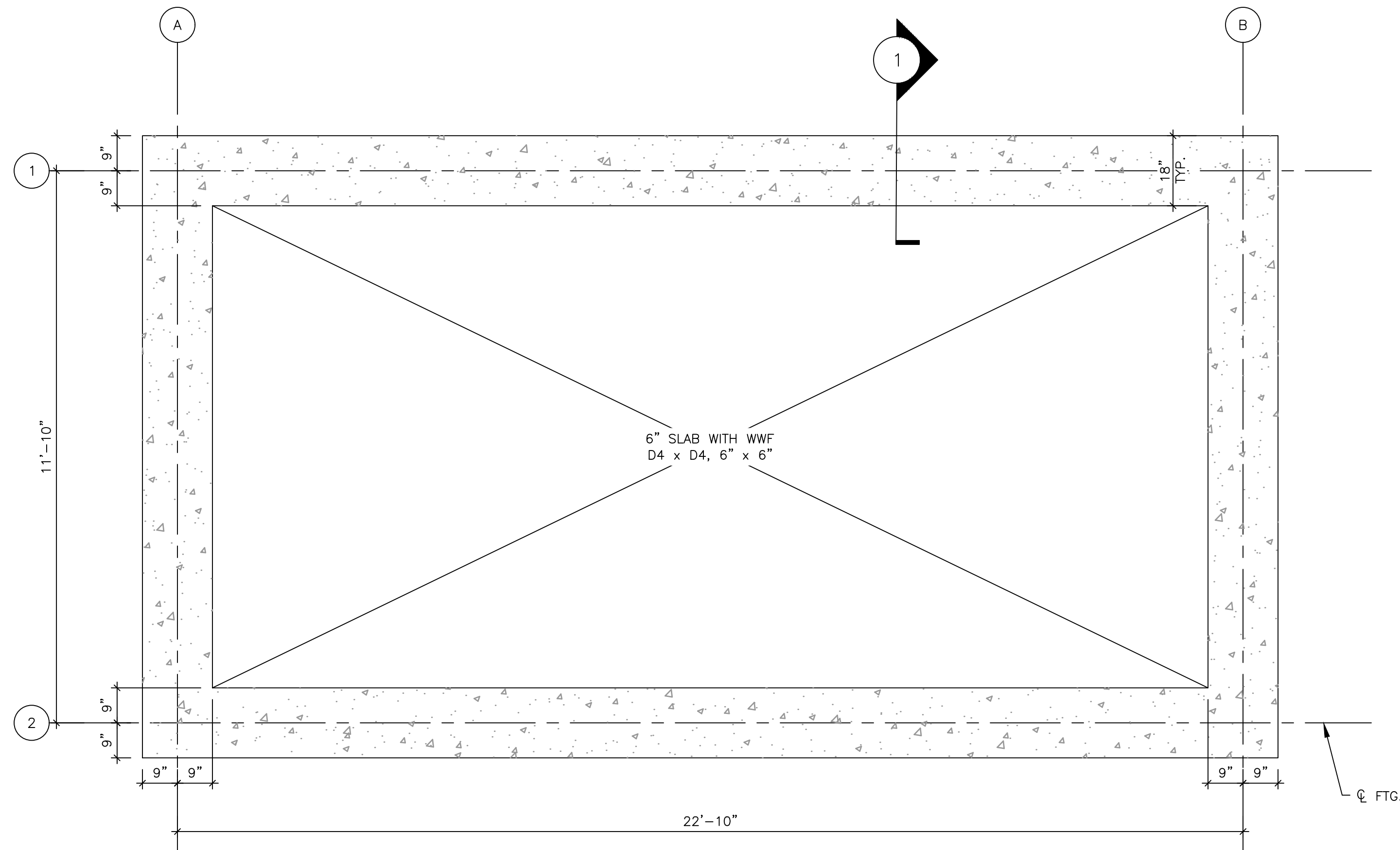


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CRYSTAL LAKE, ILLINOIS

CIVIL SITEWORK
BOOSTER PUMP STATION DETAILS

SHEET NO.

C-10



SECTION 1
SCALE: NONE

- NOTES:
1. CONCRETE COMPRESSIVE STRENGTH, f'_c , AT 28 DAYS SHALL = 4,000 PSI.
 2. DESIGN ASSUMES ALLOWABLE SOIL BEARING PRESSURE OF 2,000 PSI.
 3. AIR ENTRAINMENT OF EXTERIOR CONCRETE SHALL BE 4% TO 6%.
 4. SLUMP, WITHOUT USE OF SUPERPLASTICIZER ADMIXTURE, SHALL BE 4 TO 6 INCHES. IF SUPERPLASTICIZER IS USED, SLUMP MUST BE ADJUSTED SO THAT THE 4 TO 6 INCHES IS MET AFTER ADMIXTURE IS ADDED.



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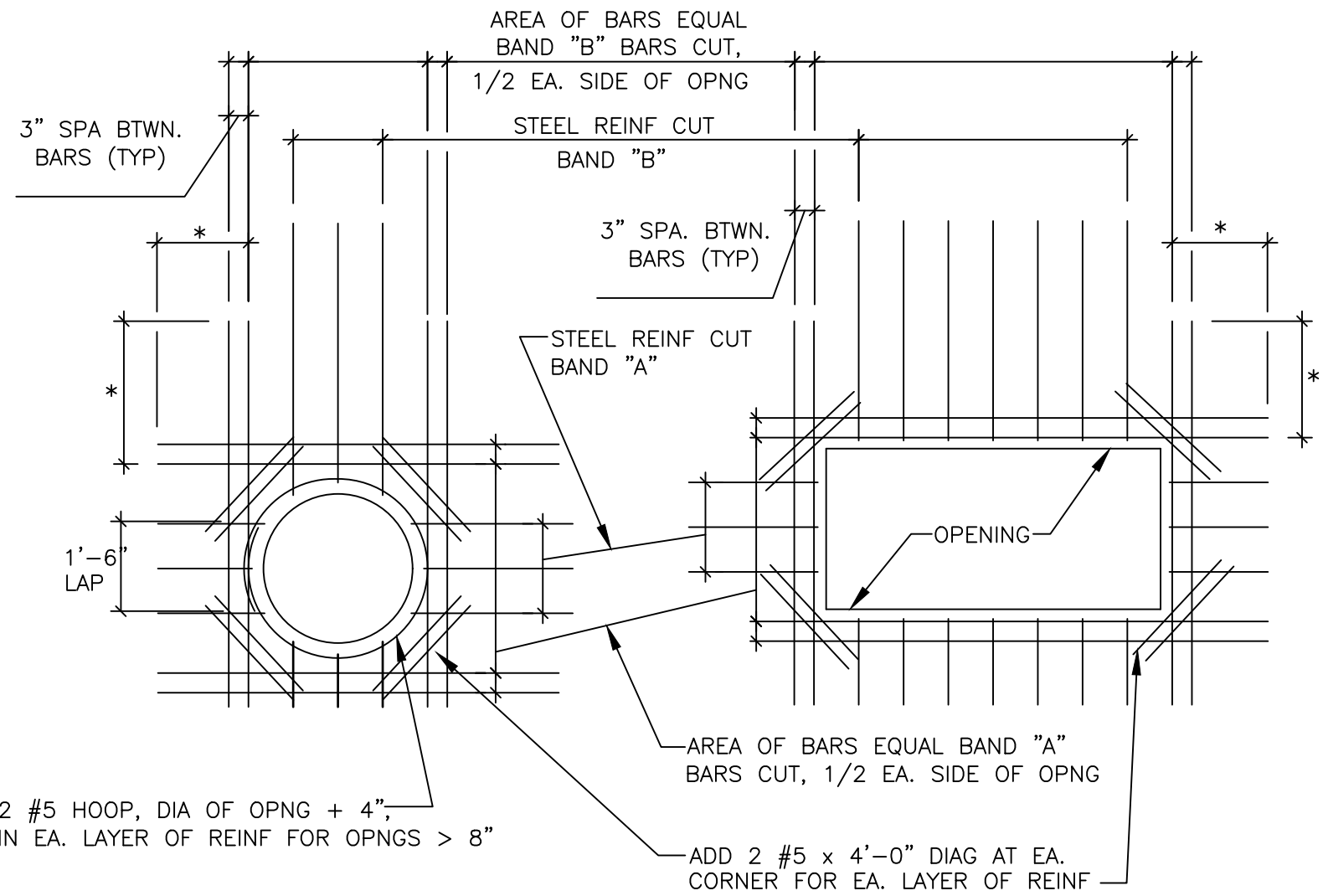
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STRUCTURAL
BOOSTER STATION FOUNDATION

SHEET NO.
S-01



NOTES:

- * TOP BAR LAP LENGTH—CONDITION #2, UNLESS NOTED OTHERWISE ON PLANS.
- DO NOT WELD REINF TO PIPE SLEEVES AND INSERTS.
- TYP FOR ALL OPNGS IN CONC. WALLS AND SLABS UNLESS INDICATED OTHERWISE ON PLANS.
- COORDINATE WALL OPENINGS WITH ALL DISCIPLINES.

1 TYPICAL OPENING REINFORCEMENT DETAIL

SCALE: NONE

REINF LAP SPLICE TABLE — CONCRETE						HOOKS
BAR SIZE	CONDITION 1		CONDITION 2		CONDITION 3	STANDARD 90 DEGREE HOOK LENGTH
	CLEAR COVER >= 2 DIA. AND C-TO-C SPACING >= 5 DIA.		CLEAR COVER >= 1 DIA. AND C-TO-C SPACING >= 3 DIA.		NEITHER CONDITION 1 NOR 2 IS MET	
	TOP *	OTHER	TOP *	OTHER	ALL BARS	
	#3	1'-4"	1'-4"	2'-0"	1'-6"	
#4	1'-7"	1'-4"	2'-8"	2'-1"		
#5	2'-0"	1'-6"	3'-4"	2'-8"		
#6	2'-6"	1'-10"	4'-0"	3'-1"	SEE NOTE 3	0'-6"
#7	3'-6"	2'-9"	5'-10"	4'-7"		0'-8"
#8	4'-0"	3'-1"	6'-8"	5'-2"		0'-10"
#9	4'-6"	3'-6"	7'-7"	5'-10"	SEE NOTE 3	1'-0"
#10	5'-1"	3'-11"	8'-6"	6'-6"		1'-2"
#11	5'-8"	4'-4"	9'-5"	7'-4"		1'-4"
						1'-7"
						1'-10"
						2'-0"

NOTES:

- BAR COVER AND SPACING MUST BOTH MEET THE CRITERIA OF CONDITION 1 OR 2 IN ORDER TO USE THAT PARTICULAR LAP LENGTH.
- TOP BARS SHALL BE DEFINED AS ANY HORIZONTAL BARS PLACED SUCH THAT MORE THAN 12" OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE BAR IN ANY SINGLE POUR. HORIZONTAL WALL BARS ARE CONSIDERED TOP BARS.
- FOR BARS THAT DO NOT SATISFY EITHER CONDITION, LAP LENGTH SHALL BE THE LENGTH FROM THE APPROPRIATE CATEGORY ("TOP" OR "OTHER") OF CONDITION 2 MULTIPLIED BY 1.5
- FOR EPOXY-COATED BARS, MULTIPLY FINAL LAP LENGTH BY 1.5.
- MASONRY REINFORCING:
#5 AND SMALLER: USE 50 TIMES BAR DIA UNO.
#6 AND LARGER: USE 70 TIMES BAR DIA UNO.

2 REBAR AND LAP SPLICE DETAIL

SCALE: NONE

ADHESIVE AND EXPANSION ANCHORS UNLESS OTHERWISE NOTED						
DIAMETER	3/8"	1/2"	5/8"	3/4"	7/8"	1"
EXP ANCH EMBED.	3"	4"	5"	6"	7"	8"
ADHESIVE ANCH EMBED.	2 1/2"	3"	3 3/4"	4 1/2"	5 1/4"	6"
ALLOWABLE TENSION (LB)	1220	2040	3120	3700	4080	6040
ALLOWABLE SHEAR (LB)	840	1330	2660	3350	5530	6250
CLOSEST ANCHOR (IN) (SEE NOTES C & I)	6 3/4	9	11 1/4	13 1/2	15 3/4	18
CLOSEST EDGE (IN) (SEE NOTE I)	9	12	15	18	21	24

ANCHORAGE TO CONCRETE — POST-INSTALLED ANCHORS

NOTES:

- UNLESS NOTED OTHERWISE, ANCHORS SHALL BE ADHESIVE.
- UNLESS NOTED OTHERWISE, MINIMUM EMBEDMENT SHALL BE PER TABLE ABOVE. IN NO CASE MAY THE EMBEDMENT BE LESS THAN THE MANUFACTURER'S "MINIMUM EMBEDMENT" FROM PUBLISHED CATALOG LITERATURE.
- UNLESS NOTED OTHERWISE, MINIMUM CENTER-TO-CENTER SPACING BETWEEN ANCHORS SHALL BE PER TABLE ABOVE ("CLOSEST ANCHOR").
- EXPANSION ANCHORS — WEDGE-TYPE, GRADE 316 STAINLESS STEEL. MANUFACTURERS: HILTI "KWIK BOLT III"; ITW RED HEAD "TRUBOLT"; POWERS "POWER-STUD"; OR SIMPSON "WEDGE-ALL".
- ADHESIVE ANCHORS — EPOXY OR ACRYLIC ADHESIVE WITH GRADE 316 STAINLESS STEEL THREADED ROD. MANUFACTURERS: HILTI "RE500-SD"; ITW RED HEAD "EPCON G5" OR POWERS "PE1000+", OR SIMPSON "SET-XP".
- INSTALL IN STRICT ACCORDANCE WITH MANUFACTURER'S PUBLISHED RECOMMENDATIONS AND ADDITIONAL RECOMMENDATIONS OF ICC EVALUATION SERVICE REPORT.
- ALL POST-INSTALLED ANCHORS MUST BE INSPECTED TWICE:
 - AFTER HOLE IS DRILLED AND CLEANED, AND
 - DURING INSTALLATION OF ADHESIVE AND ROD OR EXPANSION ANCHOR.
- ON DRAWINGS, ADHESIVE ANCHORS MAY ALSO BE REFERRED TO AS EPOXY OR EPOXY SET ANCHORS.
- UNLESS NOTED OTHERWISE THERE MAY BE NO OTHER ANCHORS WITHIN (18 TIMES THE ANCHOR DIAMETER), AND THERE MAY BE NO FREE CONCRETE EDGE WITHIN (24 TIMES THE ANCHOR DIAMETER).
- UNLESS NOTED OTHERWISE, THE MIN. ALLOWABLE TENSION AND SHEAR STATED BY THE MANUFACTURER SHALL NOT BE LESS THAN THE VALUES SHOWN IN THE TABLE ABOVE.
- UNLESS NOTED OTHERWISE, ADHESIVE ANCHORS MAY NOT BE USED IN OVERHEAD APPLICATIONS.
- CONCRETE ANCHORS MAY ALSO BE USED AT CMU, PROVIDED THAT CELLS AT AND ADJACENT TO ANCHOR ARE FULLY GROUTED (TOP AND BOTTOM, AND BOTH SIDES OF ANCHOR CELL). USE 1/2 OF ALLOWABLE LOADS STATED IN TABLE.

3 CONCRETE ANCHORS

SCALE: NONE

CONCRETE MATERIAL SCHEDULE	
PROJECT USE	MIX 1 STRUCTURAL CONCRETE
PROPERTIES/MATERIALS	
COMPRESSIVE STRENGTH — MINIMUM	4,000 psi
PORTLAND CEMENT — ASTM C150	Type II
FLYASH — ASTM C618	15% max
AGGREGATE — COARSE — ASTM C33	1" max
AIR ENTRAINMENT — ASTM C260 (EXTERIOR LOCATION ONLY)	6% ± 1%
SUPER PLASTICIZER — ASTM C494	(OPTIONAL) TYPE F
WATER TO CEMENT RATIO — MAXIMUM	0.42 max
SYNTHETIC FIBERS	N/A
MAXIMUM UNIT WEIGHT	150 PCF

NOTE:

- ALL CONCRETE IS MIX 1 UNLESS NOTED OTHERWISE.

4 CONCRETE MIX

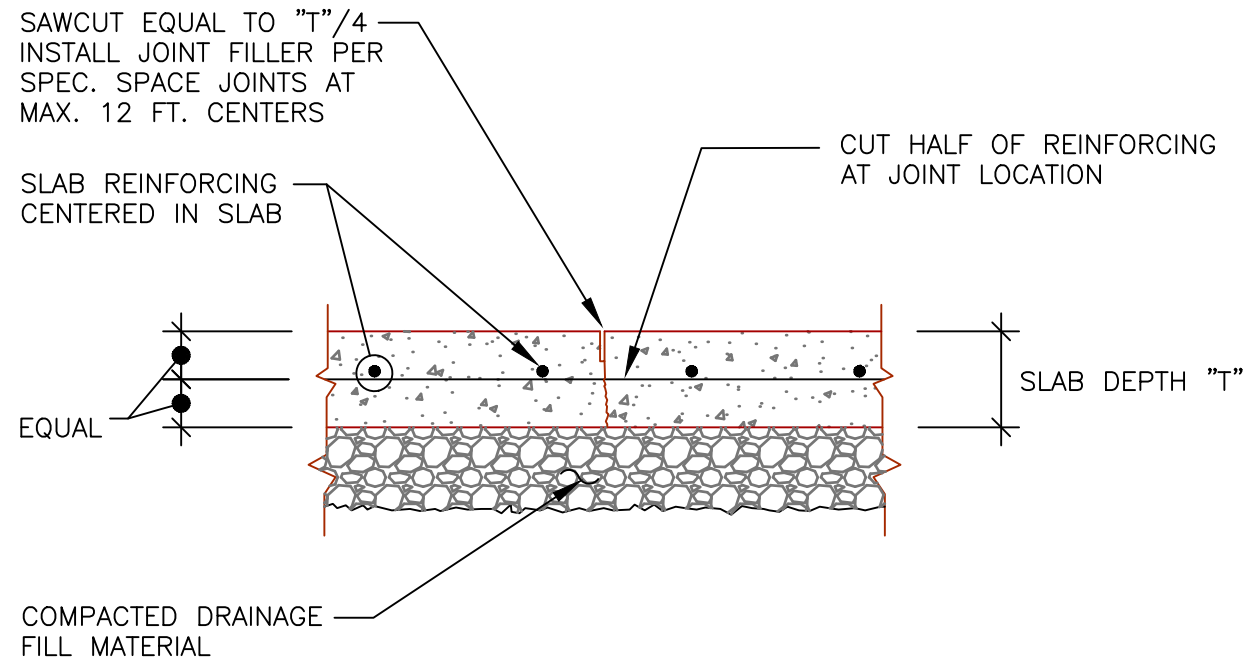
SCALE: NONE

CONCRETE PROTECTION FOR REINFORCEMENT
CLEAR CONCRETE COVER DISTANCES UNO

CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3"
CONCRETE IN CONTACT WITH OR IMMEDIATELY ABOVE OR ADJACENT TO WATER/WASTEWATER	2"
CONCRETE EXPOSED TO EARTH OR WEATHER	
#6 THROUGH #11 BARS	2"
#5 AND SMALLER, W31 OR D31 WIRE	1 1/2"
CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	
SLABS, WALLS AND JOISTS: #11 AND LARGER BARS	1 1/2"
#10 AND SMALLER BARS	LARGER OF 1" OR BAR DIA.
BEAMS AND COLUMNS: PRIMARY REINFORCEMENT, TIES, STIRRUPS AND SPIRALS	1 1/2"

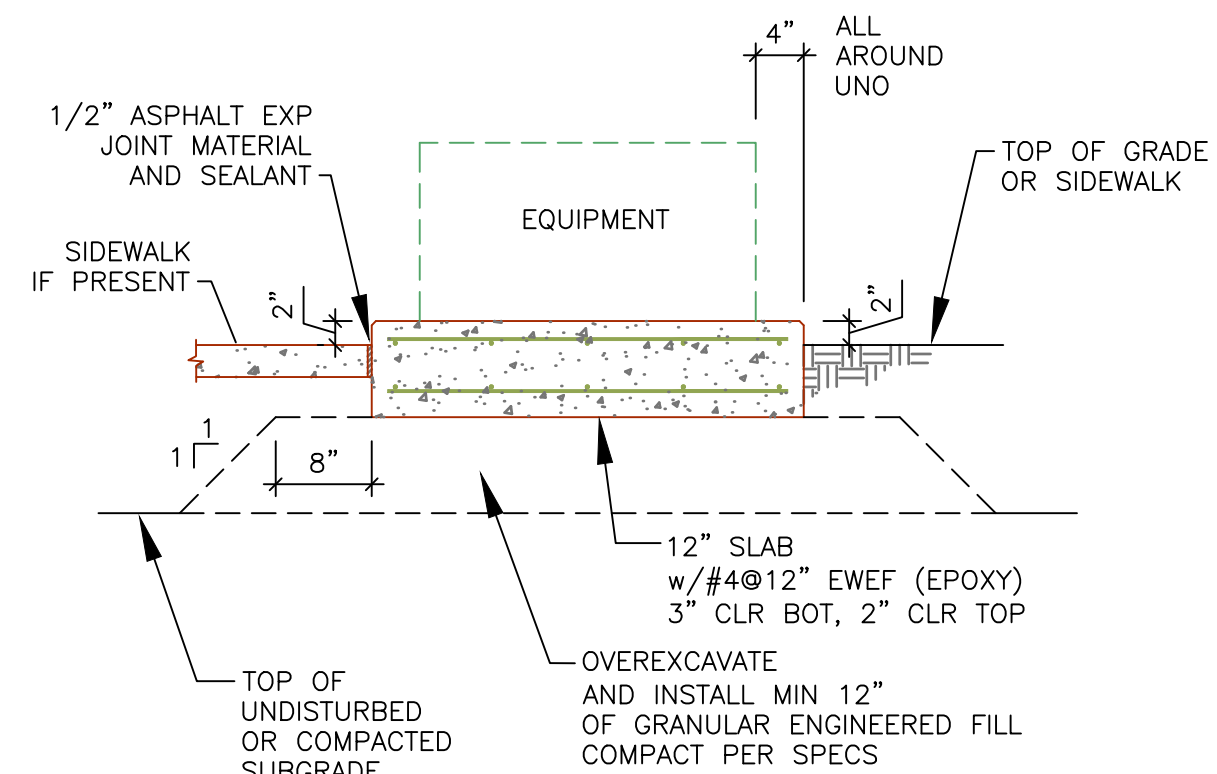
5 CONCRETE REINFORCEMENT PROTECTION

SCALE: NONE



6 TYPICAL SAWCUT CONTROL JOINT

SCALE: NONE



7 OUTDOOR EQUIPMENT PAD

SCALE: NONE

FOR PERMIT/BID

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APPROVED: JMW JOB NUMBER: 160386.01
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CAD FILE: J:\2016\160386.01\CAD\DWGS\S\160386.01_sht-Details.dwg

BAR IS ONE INCH ON
OFFICIAL DRAWINGS.
0 1"
IF NOT ONE INCH,
ADJUST SCALE ACCORDINGLY.

NO.	DATE	BY	REVISION DESCRIPTION



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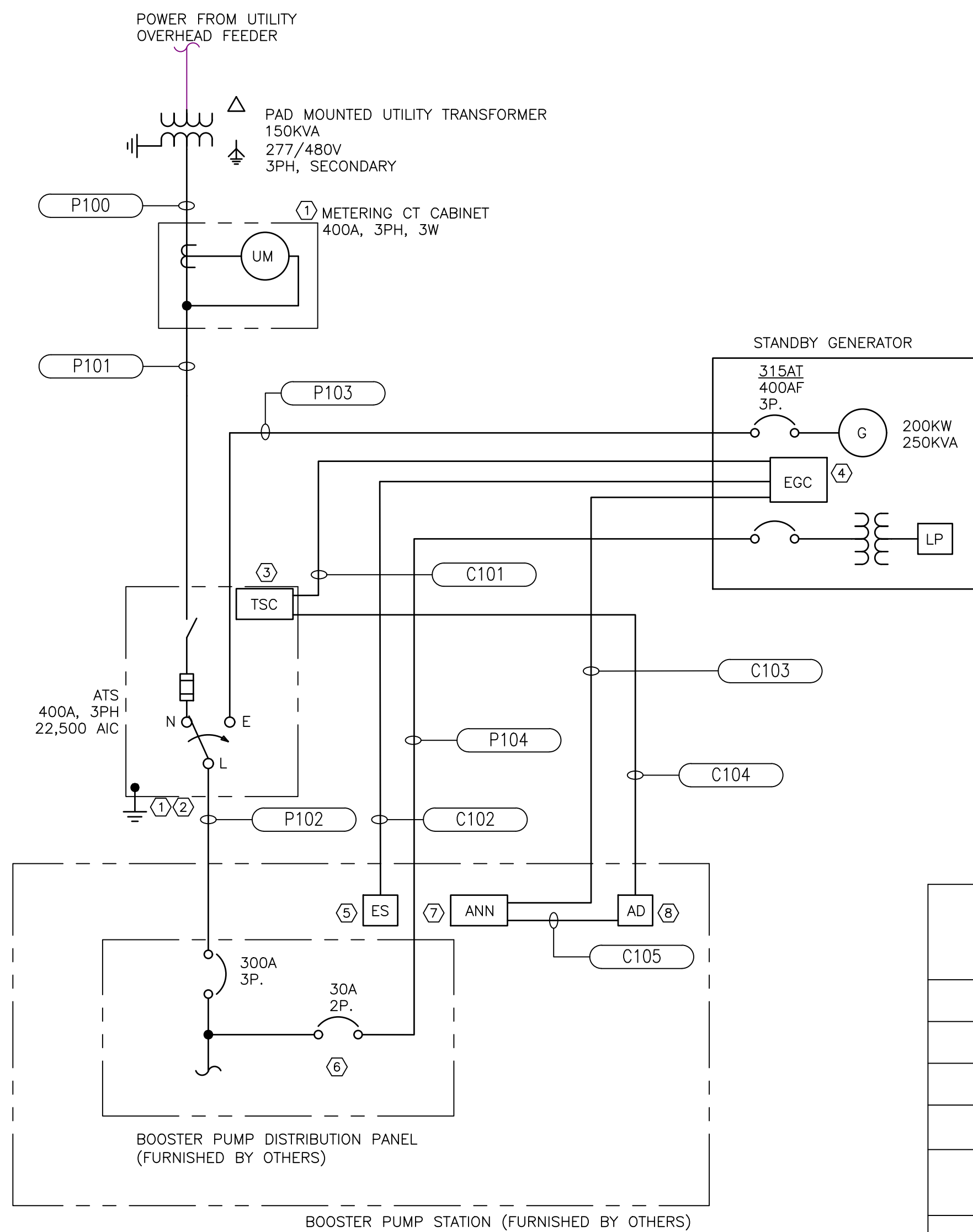


McHENRY COUNTY COLLEGE
WATER SERVICE EXTENSION &
BOOSTER STATION INSTALLATION
CRYSTAL LAKE, ILLINOIS

STRUCTURAL
BOOSTER STATION DETAILS

SHEET NO.

S-02



KEY NOTES: (X)

1. NEMA 3R ENCLOSURE.
2. SERVICE ENTRANCE RATED AUTOMATIC TRANSFER SWITCH.
3. TSC - TRANSFER SWITCH CONTROLLER.
4. EGC - ENGINE GENERATOR CONTROLLER.
5. ES - EMERGENCY STOP PUSHBUTTON FURNISHED BY ENGINE GENERATOR SUPPLIER FOR INSTALLATION INSIDE BOOSTER PUMP STATION. COMBINE WIRING WITH CIRCUIT C101.
6. FURNISH AND INSTALL BREAKER IN BOOSTER PUMP DISTRIBUTION PANEL.
7. REMOTE ANNUNCIATOR FURNISHED BY GENERATOR SUPPLIER.
8. AUTO-DIALER (FURNISHED AND INSTALLED BY BOOSTER STATION SUPPLIER).

CIRCUIT	CONDUIT SIZE IN INCHES	CONDUCTORS	FROM	TO
P100	3	3 - 350 KCMIL, #2GND	UTILITY TRANSFORMER	METERING CT CABINET
P101	3	3 - 350 KCMIL, #2GND	METERING CT CABINET	ATS
P102	3	3 - 350 KCMIL, #2GND	ATS	BOOSTER PUMP DISTRIBUTION PANEL
P103	3	3 - 350 KCMIL, #2GND	STANDBY GENERATOR	ATS
P104	1	2 - #8, #8GND	BOOSTER PUMP DISTRIBUTION PANEL	GENERATOR AUXILIARY POWER
C101	1	14 #14, #14 GND	TRANSFER SWITCH CONTROLLER	ENGINE GENERATOR CONTROL
C102	1	4 #14, #14 GND	EMERGENCY STOP PUSHBUTTON	ENGINE GENERATOR CONTROL
C103	1	SIZED BY GENERATOR MANUFACTURER	ENGINE GENERATOR CONTROL	REMOTE ANNUNCIATOR
C104	1	6 #14, #14 GND	TRANSFER SWITCH CONTROLLER	AUTO-DIALER
C105	1	6 #14, #14 GND	REMOTE ANNUNCIATOR	AUTO-DIALER

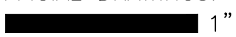
1 ONE-LINE DIAGRAM

SCALE: NONE

2 CIRCUIT SCHEDULE

SCALE: NONE

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0"  1"
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CRYSTAL LAKE, ILLINOIS

ELECTRICAL
ONE-LINE DIAGRAM

SHEET NO.

E-01