

VILLAGE OF LOMBARD
REQUEST FOR BOARD OF TRUSTEES ACTION
For Inclusion on Board Agenda


 X Resolution or Ordinance (Blue) Waiver of First Requested
 Recommendations of Boards, Commissions & Committees (Green)
 Other Business (Pink)

TO: PRESIDENT AND BOARD OF TRUSTEES

FROM: Scott Niehaus, Village Manager

DATE: April 1, 2025 (COW) (B of T) **Date:** April 17, 2025

TITLE: South Lombard Elevated Storage Tank - Design/Build Professional Engineering Support Services

SUBMITTED BY: Carl Goldsmith, Director of Public Works 

BACKGROUND/POLICY IMPLICATIONS:

The Village will utilize the design-build method of procurement for the design and construction of the 1.5 million gallon water tower located along Butterfield Road. The Village used the Qualification Based Selection (QBS) procurement strategy for the project. The Village selected the design build team of Baxter & Woodman Engineering, Boller Construction and CBI for the project. The Village has received a guaranteed maximum price (GMP) for the project of \$11,149,637.00.

FISCAL IMPACT/FUNDING SOURCE:

Project Number: WA 21 10

Contract Amount: \$11,149,637.00

WSCapRsveFd (Account #520.790.715.75420)	\$3,149,637.00
Rebuild IL Grant (Account # 416.710.118.75420)	\$4,250,000.00
Butterfield TIF (Account #443.740.743.75570)	\$3,750,000.00

Review (as necessary):

Village Attorney X	_____	Date	_____
Finance Director X	_____	Date	_____
Village Manager X	_____	Date	_____

NOTE: All materials must be submitted to and approved by the Village Manager's Office by 12:00 noon, Wednesday, prior to the Agenda Distribution.



April 1, 2025

To: Village President and Board of Trustees
Through: Scott Niehaus, Village Manager
From: Carl Goldsmith, Director of Public Works *g*
Subject: **South Lombard Elevated Water Tower Design Build
Professional Engineering Services**

The Village of Lombard owns and operates a water distribution system that serves more than 15,000 water customers, representing a population of over 45,000. The potable water system consists of two (2) primary pressure zones. The low-pressure zone generally located north of Roosevelt Road (IL Route 38) and the high-pressure zone located south of Roosevelt Road.

The Village receives water from the DuPage Water Commission (DWC) through four transmission mains ranging in size from 12" to 60". The Village distributes roughly 3.59 million gallons of water on a daily basis. The Village anticipates the demand to increase based upon significant residential growth near the Yorktown Mall on the south end of Lombard.

The Village completed Water Network Analyses (2001 and 2012) that looked holistically at the Village's water system. The analyses provided recommendations for the operation of the water system, as well as capital improvements to enhance and modernize the system. As a result of the network analyses, the Village has included the construction of an additional elevated water tower on the south end of Lombard in the 10-year Capital Improvement Plan (CIP). The Village had previously planned on constructing the tower on a parcel on Eisenhower Lane. Based upon preliminary engineering studies, the Village determined that the Butterfield Road corridor was a more suitable location for the elevated storage facility. The Village sold the Eisenhower Lane site and purchased a parcel on the former Northern Baptist Seminary site along Butterfield Road, just east of Yorktown Mall.

The need for the tower arises out of requirements for storage capacity imposed by the DuPage Water Commission, as well as the significant population growth on the south end of Lombard. To address the Village's deficient potable water storage capacity, as well as increased demand in the southern section of Lombard, additional water storage is needed within the high-pressure zone. Therefore, this Village plans to construct the South Lombard Elevated Storage Tank of 1,500,000 gallons, located on the Village owned parcel along Butterfield Road.

The Village determined that the most effective method for the construction of the tower is the design-build method of procurement for the design and construction of the 1.5-million-gallon water tower located along Butterfield Road. The design-build process streamlines construction projects by having a single entity, the design-build team, handle both design and construction under one contract, leading to better collaboration and potentially faster project completion. In design-build construction, the Village enters into a single contract to cover both the engineering design services and the construction of the tank, streamlining the collaboration, communication,

and coordination process. Throughout the entire building process, the Village has a single point of contact for questions and collaborative input.

The Village used the Qualification Based Selection (QBS) procurement strategy for the project. The Village selected the design build team of B&W/Boller Design Build in conjunction with CB&I for the project. Since the time that it was determined that the most qualified firm to provide these services was the design team of B&W/Boller Design Build in conjunction with CB&I, staff has been working with the design time to refine the scope of the project and ultimately agree on a guaranteed maximum price (GMP). The Village has received the attached contract with a (GMP) for the project of \$11,149,637.00.

In addition to the construction of the tank, the Village has been working with the DuPage Water Commission on the design and construction of a joint pressure adjusting station/metering station that will be built on the site. It is anticipated that the tank construction will be completed in Fall 2027 and that the tank will be operational in early 2028.

The proposal from B&W/Boller Design Build in conjunction with CB&I is enclosed for reference. This work will be performed for a not-to-exceed fee of \$11,149,637.00. The funding of the project comes from a Rebuild Illinois Grant in the amount of \$4,250,000 and funds from the Water & Sewer Capital Reserve Fund.

Staff recommends that the Village President and Board of Trustees approve a Resolution Authorizing the Village President and Clerk to execute a contract with B&W/Boller Design Build in conjunction with CB&I for the design and construction of the South Lombard Elevated Water Tower in the amount not to exceed \$11,149,637.00. Funding for the project will be through various funding sources that include:

WSCapRsveFd (Account #520.790.715.75420)	\$3,149,637.00
Rebuild IL Grant (Account # 416.710.118.75420)	\$4,250,000.00
Butterfield TIF (Account #443.740.743.75570)	\$3,750,000.00

Enclosed please find a resolution, contract, scope of services and the fee schedule for the design and construction of the South Lombard Elevated Water Tower. Please present this resolution and contract to the President and Board of Trustees for their review at their regular meeting of April 17, 2025.

R E S O L U T I O N
R _____ 25

A RESOLUTION AUTHORIZING SIGNATURE OF
PRESIDENT AND CLERK ON AN AGREEMENT

WHEREAS, the Corporate Authorities of the Village of Lombard have received an Agreement between the Village of Lombard, and B&W/Boller Design Build in conjunction with CB&I regarding the South Lombard Elevated Water Tower project, professional engineering services as attached hereto and marked Exhibit "A"; and

WHEREAS, the Corporate Authorities deem it to be in the best interest of the Village of Lombard to approve such agreement.

NOW, THEREFORE, BE IT RESOLVED BY THE PRESIDENT AND BOARD OF TRUSTEES OF THE VILLAGE OF LOMBARD, DU PAGE COUNTY, ILLINOIS as follows:

SECTION 1: That the Village President be and hereby is authorized to sign on behalf of the Village of Lombard said agreement as attached hereto.

SECTION 2: That the Village Clerk be and hereby is authorized to attest said agreement as attached hereto.

Adopted this _____ day of _____, 2025.

Ayes; _____

Nays: _____

Absent: _____

Approved this _____ day of _____, 2025.

Keith Giagnorio
Village President

ATTEST:

Elizabeth Brezinski
Village Clerk



2. Remove Asphalt pavement.
3. Remove Concrete curbing.
4. Remove existing concrete structures 1' below grade. *Removal of existing structure foundations discovered below 1' below-grade are not included.*
5. Dispose of excess and unsuitable soil, and other materials on property approx. 200' north of lot.
6. Required structure excavation.
 1. Excavate for installation of footings and interior slab.
 2. Excavate Area for Laydown Area.
 3. CA-1 placed on Fabric with CA-6 top for laydown area.
 4. Excavate for concrete area.
 5. Granular backfill as necessary.
 1. Backfilling tank ring wall exterior (compacted excavated material or fill).
 2. Backfilling tank ring wall interior (compacted crushed stone).
 6. Dispose of excess and unsuitable soil, and other materials on property approx. 200' north of lot.
7. Elevated Tank foundation and floor construction (augercast piles).
 1. Includes pile cap supported on 106 augercast piles.
 2. Slab-on-grade floor with frame and grate.
 3. Pile load tests and concrete testing included.
8. Furnish & install 1.5 MG elevated tank including:
 1. 1.5MG x 145' TCL Waterspheroid Elevated Water Storage Tank.
 2. (2) 16"Ø CS Expansion Joints.
 3. 16"Ø Inlet, Outlet - Dual Riser.
 4. 16"Ø Pipe support Angle w/ U-Bolt.
 5. 12"Ø Overflow CS Std Wt, Mitered Elbows, Angle Pipe Supports w/ U-Bolts (12' O.C.).
 6. 36" x 80" Commercial Access Door.
 7. 20'Ø x 42" High Standard Handrail (Angle).
 8. G29 Aluminum Vent w/ 24" Venting Manway.
 9. (3) Antenna Provisions Included.
 10. 60"Ø Access Tube.
 11. Lad-Saf Galvanized Safety Climb on all Ladders.
 12. Supply Pax Mixing System (PWM500 V3) for install by others.
 13. Supply anchor bolts for install by others.
 14. Painting:
 1. Field Paint per CBI standard specifications.
 2. Tnemec Paint System: Shop Primed, 3 coat ext area, 3 coat wet area, 3 coat dry area per CBI standard specifications.
 3. Sterilization of tank (Method 3).
 4. Containment.
 5. Logos.
 15. **Note:** *For safety reasons, this proposal assumes that no entities outside of the Baxter & Woodman/Boller Construction LLC. umbrella will be permitted to access*



March 26, 2025

Mr. Carl Goldsmith
Director of Public Works
Village of Lombard
255 E. Wilson Avenue
Lombard, Illinois 60148

Subject: *PROPOSAL: Village of Lombard – South Lombard Elevated Storage Tank Design-Build Project*

Dear Mr. Goldsmith:

The South Lombard Elevated Storage Tank project is crucial for the Village as it addresses both current and future storage needs, providing reliable service for residents and businesses. As an established design-build entity since 2015, Baxter & Woodman/Boller Construction, LLC has the proven track record needed to construct the new elevated storage tank to meet your schedule and budget.

Baxter & Woodman/Boller Construction, LLC. is pleased to provide a design-build price proposal for the South Lombard Elevated Storage Tank Project.

Design-build delivery offers the following benefits to this project:

- Lump Sum price before the project is kicked off meaning no change orders for the Village.
- Reduces project schedule by ~40% by allowing long lead-time equipment to be ordered immediately and construction to begin while project details are being finalized while waiting for equipment to arrive on-site.
- Reduces engineering costs significantly by eliminating bidding level plans and specifications, eliminating the formal bidding process, and allowing design and construction engineering to occur simultaneously.

WORK OVERVIEW & SCOPE

The detailed project scope for this project is included below. Additional scope information is included in Appendix A.

1. **Base Scope:**

1. General Condition & Mobilization.
2. Temporary facilities and controls (Toilet, Trailer, Electricity).
3. Temporary fencing.
4. Silt fence (south, east, and west).
5. Site preparation, rubble relocation, and erosion control.
 1. Remove debris and soils to level grade in preparation of excavation.

8678 Ridgfield Road, Crystal Lake, IL 60012 • 815.459.1260

baxterwoodman.com • bollerconstruction.com



the site during construction of the elevated tank. Access to site will be limited during painting of the elevated tank.

9. Furnish & install approx. 80 LF of 16" DI yard piping.
 1. Provide and install pipe into tower base up to first flange.
 2. Including reducers and fittings as needed.
10. Furnish & install approx. 170 LF of 8" DI yard piping to connect to existing 6" watermain in the Village's system.
 1. Including reducers and fittings as needed.
11. Furnish & install approx. 485 LF of 12" watermain to connect to existing 10" watermain in the Village's system.
 1. Includes horizontal directional drilling (HDD) of pipe under existing wetland (as required), vault with pressure connection and water valve, and reducer/fittings as needed.
 2. Includes restoration of lawns, pavement, sidewalks, and curb and gutter as needed.
12. Furnish & install thrust blocking at bends.
13. Furnish & install water hydrant.
14. Furnish & install 16" gate valve in vault.
15. Granular backfill pipe trenches as necessary.
16. Chlorination of tank and piping (including pressure testing).
17. Site grading & restoration.
 1. Provide and Install Pulverized black dirt as necessary.
 2. Provide and Install Hydro Seeding as necessary.
 3. Provide and Install erosion blanket as necessary.
18. Concrete driveway.
19. Approx. 720 LF of 7' high chain link fence.
 1. Double gate at driveway entrance to elevated tank site.
 2. Includes double gate at access point of future Pressure Adjusting Station.
20. Miscellaneous painting as required.
21. Required electrical work:
 1. Furnish and install (1) 800A 277V/480V electrical service with (2) breakers:
 1. (1) 100A breaker & feeder for the water tower.
 2. (1) 600A breaker for future DWC PAS structure (breaker only, and conduit stub for future extension).
 2. Furnish and install 100A underground feeder to lighting panel in the water tower.
 3. Furnish and install of (1) 100A power panel inside the tower.
 4. Furnish and install tank interior lighting and receptacles within tower base.
 5. Furnish and install conduit, cabling and connections for the following SCADA Components:
 1. (1) SCADA Panel
 2. (3) Pressure Transmitters
 3. (2) Flow Meters
 4. (2) Limit Switches



6. Furnish and install (4) Double Obstruction Lights at the top of the tower.
7. Furnish and install (3) 2" PVC Conduit Sleeves outside of tank foundation for future use.
8. Excavation for electrical conduits.
9. Furnish and install of grounding around tower base (assumes CB&I will provide grounding tabs).
10. Install and power PAX Water Mixer (PWM500 V3) provided by CB&I.
22. Required instrumentation work:
 1. Provide one (1) fully assembled SCADA panel with Allen-Bradley PLC and radio.
 2. Provide three (3) ABB Pressure Transducers with manifolds.
 3. Provide two (2) ABB 8" Magnetic Flow Meters
 4. Provide two (2) Limit Switches for hatch intrusion detection.
 5. Includes project management, labor, "for construction" design, antenna installation, startup, commissioning, and training.
23. Design and construction engineering.
24. Program, integrate, and test SCADA.
25. Performance/payment bond and insurance.
2. **Items to be provided by Owner:**
 1. Water for construction and testing.
 2. Permit fees.
 3. Tree removal as required.
 4. Gravel access road from Butterfield Road Lot 2.
 5. Underground utility relocation and abandonment.
 6. Relocation of utilities to remain in service.

DESIGN-BUILD COST PROPOSAL

The lump sum price for this design build proposal including installation and construction, design and construction engineering, and SCADA programming is in the table below, on a lump sum basis. A cost breakout by trade can be provided by request.

Total Lump Sum D-B Price	\$11,149,637
<u>Suggested Owners Contingency</u>¹	\$500,000

¹Owners contingency can only be utilized upon specific approval and direction from Owner for additional desired work that may be discovered during the course of the project. Owners contingency is not included in the total lump sum price in this proposal.

When the Village decides to move forward, we will finalize a full project schedule and design-build lump sum contract. Prices in this proposal are valid for 90-days after proposal date.



We are excited by this opportunity and available to begin immediately. Should you have any questions about our proposal, please feel free to contact Design-Build Project Manager Chuck Brunner, PE, SE at (815) 444-3210 or cbrunner@baxterwoodman.com. *We are ready to begin!*

Sincerely,

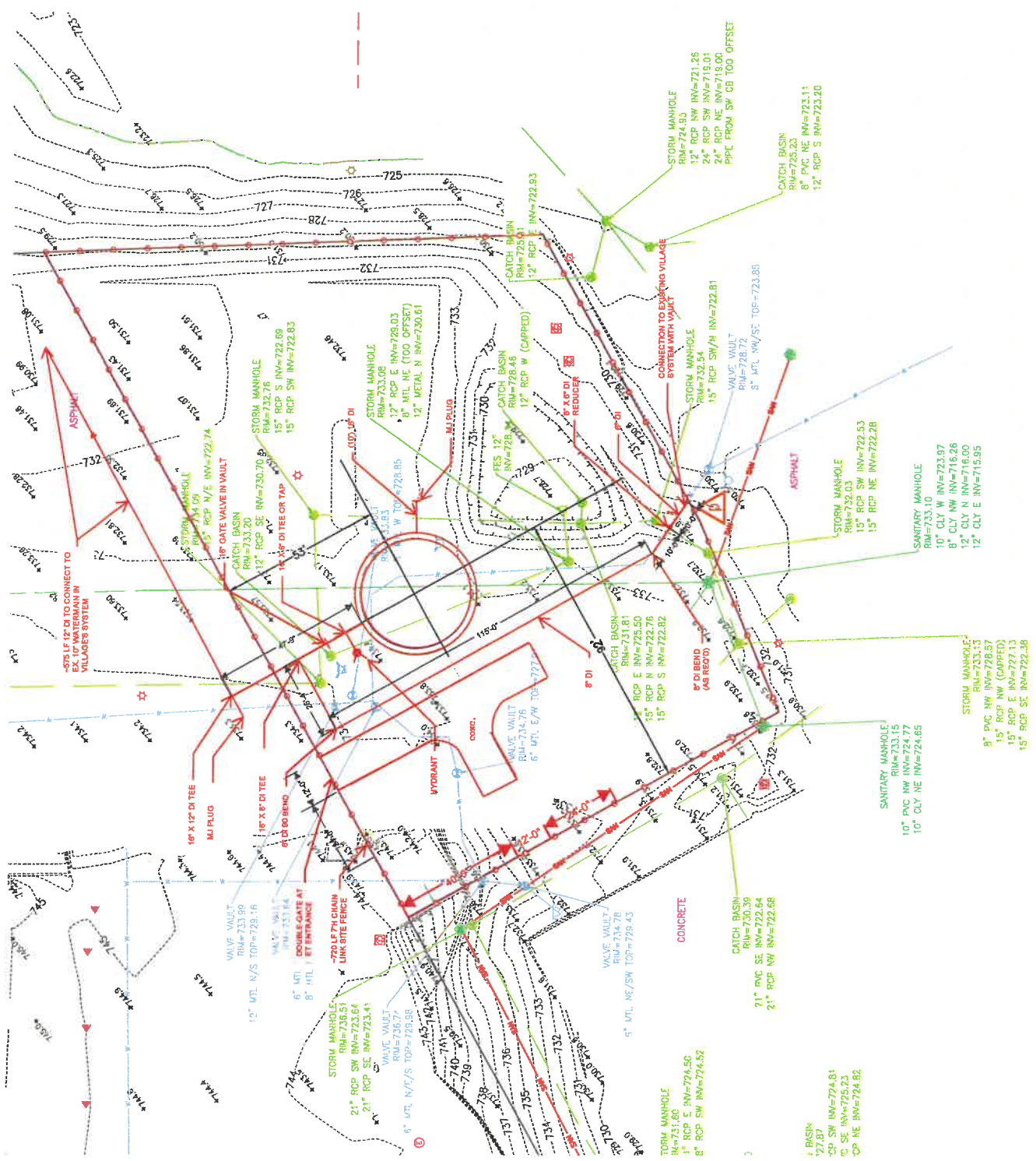
BAXTER & WOODMAN / BOLLER CONSTRUCTION LLC.

A handwritten signature in dark ink, appearing to read 'John V. Ambrose'.

John V. Ambrose, PE
Principal

P:\LOMBD\2500175-South Lombard Elevated Storage Tan\00-Design-Build\01-Project Management\Price
Proposal\LOMBD_South_ET_B&W-Boller Proposal.docx

**APPENDIX A -
ADDITIONAL SCOPE
INFORMATION**





PROJECT
DUPAGE COUNTY METER/
PRESSURE ADJUSTING
STATION MS14E/
CONTRACT MS14E/

CLIENT
DUPAGE COUNTY WATER
COMMISSION
1000 WEST LAMAR AVENUE
WILMINGTON, ILLINOIS 60091
630.834.000 TEL
www.dwc.org

CONSULTANT
AECOM
200 EAST WACKER DRIVE
SUITE 1400
CHICAGO, ILLINOIS 60601
312.373.7700 FAX
www.aecom.com

CONSULTANTS

REGISTRATION

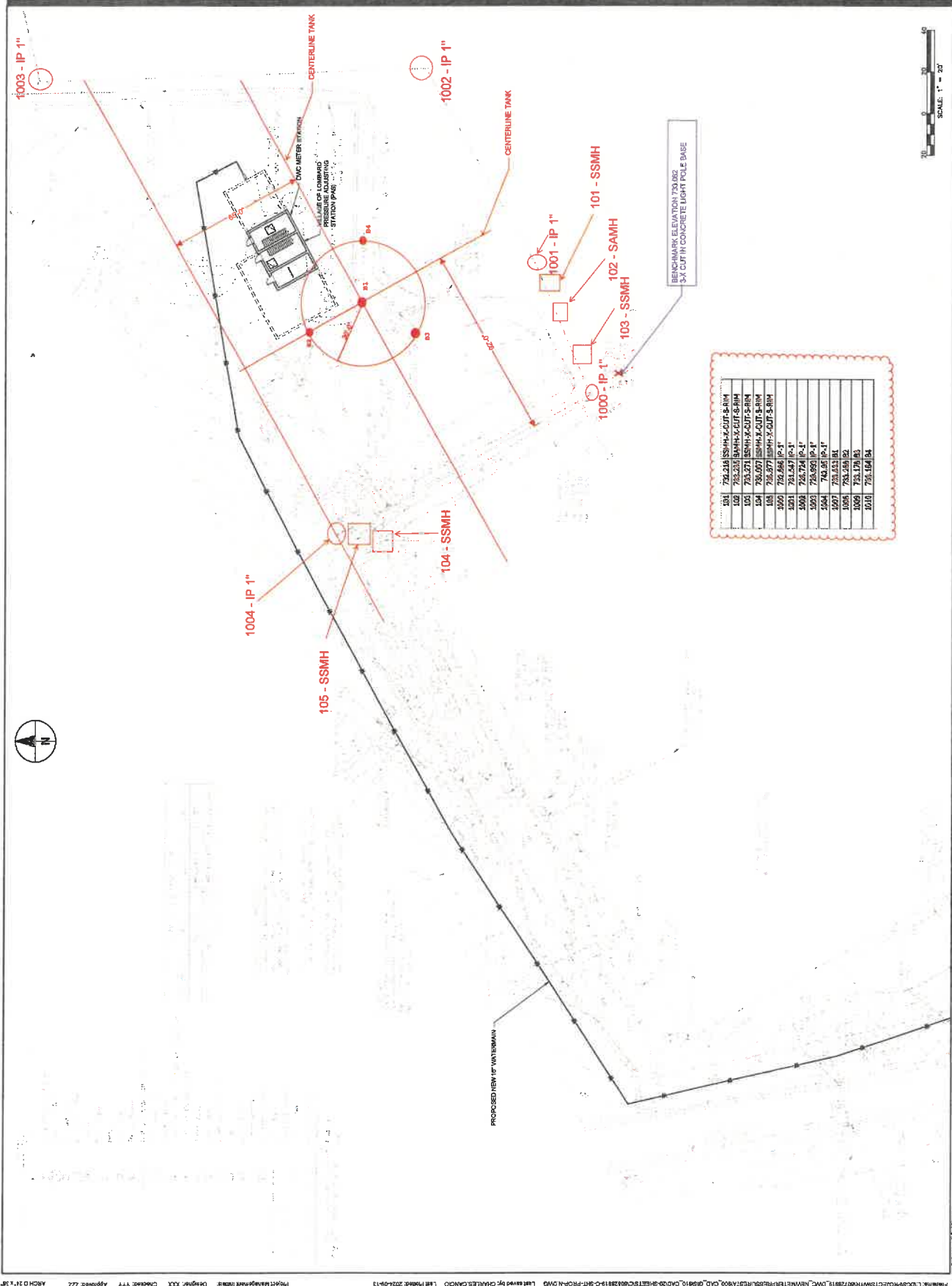
ISSUE/REVISION

NO.	DATE	DESCRIPTION
1	11/11/2010	KEY PLAN

PROJECT NUMBER
60728919

SHEET TITLE
SITE PLAN NORTH PROFILE,
NOTES AND LEGEND

SHEET NUMBER
C-02
4 OF 00



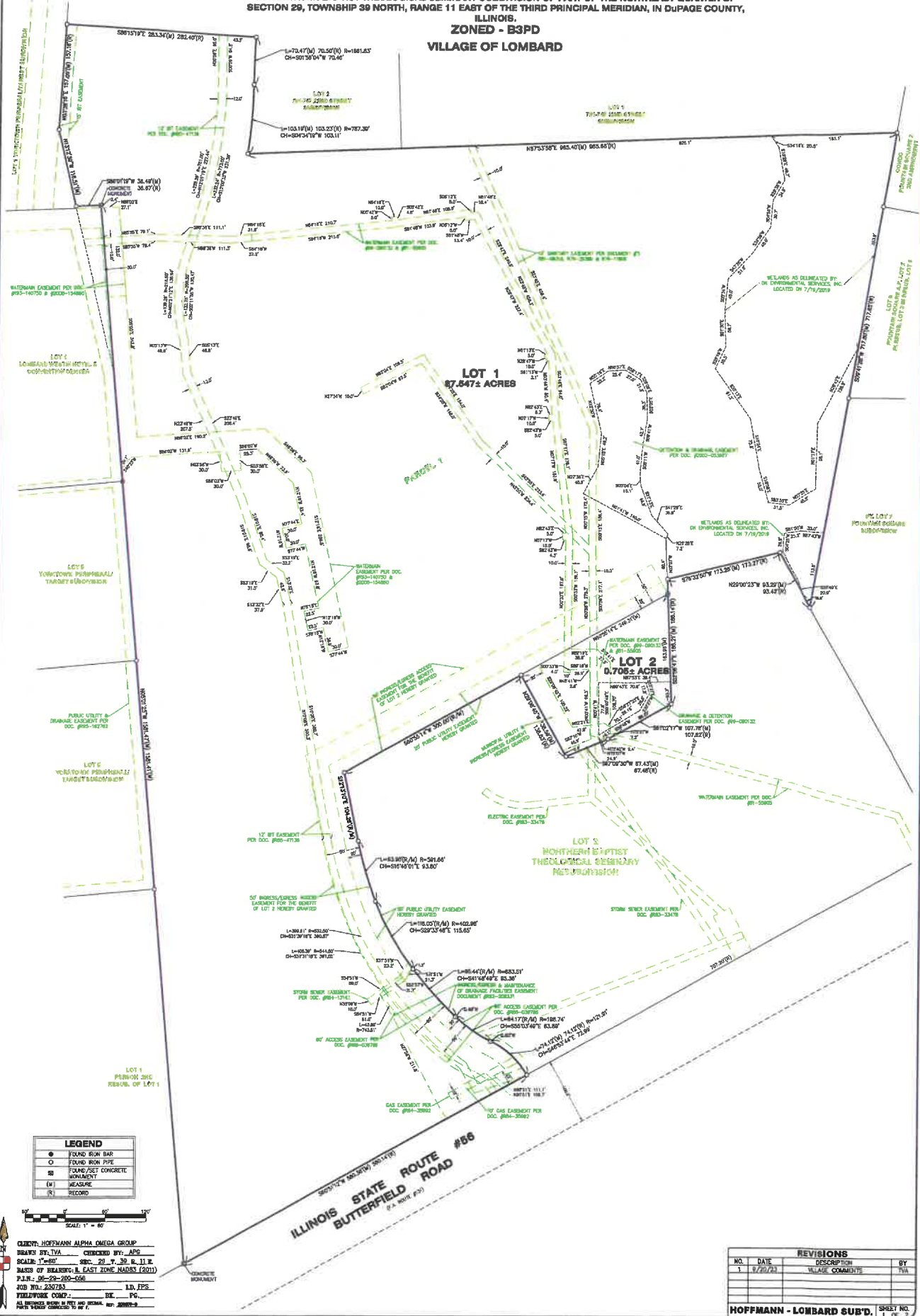


FINAL PLAT OF HOFFMANN - LOMBARD SUBDIVISION

A RESUBDIVISION OF PARCEL 1 IN NORTHERN BAPTIST THEOLOGICAL SEMINARY ASSESSMENT PLAT OF LOT 1
IN NORTHERN BAPTIST THEOLOGICAL SEMINARY SUBDIVISION OF PART OF THE NORTHEAST QUARTER OF
SECTION 29, TOWNSHIP 39 NORTH, RANGE 11 EAST OF THE THIRD PRINCIPAL MERIDIAN, IN DU PAGE COUNTY,
ILLINOIS.

PARCEL ID #06-29-200-056

ZONED - B3PD
VILLAGE OF LOMBARD



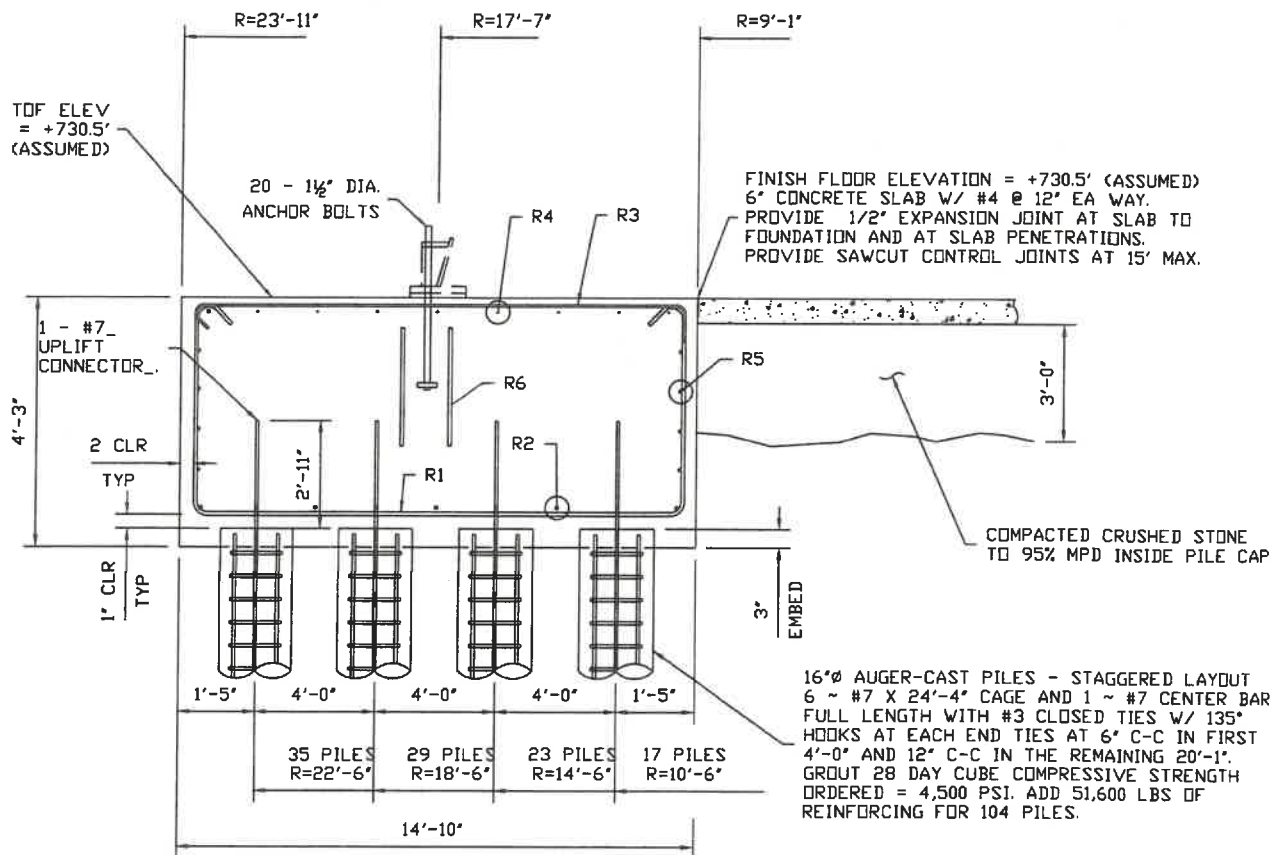
LEGEND	
●	FOUND EISEN BAR
○	FOUND IRON PIPE
▬	FOUND SET CONCRETE MONUMENT
(M)	MEASURE
(R)	RECORD

SCALE: 1" = 80'

CLIENT: HOFFMANN ALPHA OMEGA GROUP
DRAWN BY: TWA
CHECKED BY: APC
SCALE: 1"=80' SEC. 29, T. 39 N. R. 11 E.
RANGE OF BEARING: E. EAST ZONE ADJUST (2011)
P.M.S.: 06-29-200-056
JOB NO.: 230783
FIELDWORK COMPLETED BY: TWA
DATE: 11/11/2023
PART: 1 OF 2

REVISIONS			
NO.	DATE	DESCRIPTION	BY
1	11/20/23	VILLAGE COMMENTS	TWA

TOWER FOUNDATION
(NOT TO SCALE)



242	CU. YDS.	4,500 PSI	CONCRETE IN CAP (4,000 PSI DESIGN)
22,440	LBS.	A615 GR. 60	REINFORCING IN CAP PLUS HAIRPINS

R1	208 - #9	EQ SPCD - BEND UP WITH 135° HOOKS ON BOTH SIDE AT THE TOP AS SHOWN
R2	16 - #6	CONT - LAP 24" MIN AND STAGGER ADJ LAPS 24" MIN
R3	104 - #5	EQ SPCD - BEND DOWN WITH 135° HOOK ON ONE SIDE AND 90° BEND ON OTHER SIDE AS SHOWN
R4	16 - #6	CONT - LAP 31" MIN AND STAGGER ADJ LAPS 31" MIN
R5	6 - #6	CONT (HALF EA. FACE) - LAP = 24" MIN AND STAGGER ADJ LAPS 24" MIN.
R6	40 - #6	HAIRPINS W/90° HOOKS 2 - HAIRPINS PER ANCHOR BOLT

PILING: 104 ~ 76 TON PILES ~ 16"Ø AUGER-CAST PILES - STATIC PILE LOAD TEST REQ'D
 PILE GROUT STRENGTH (ORDERED) = 4,500 PSI
 PILE CAPACITY TO BE CONFIRMED WITH LOAD TEST TO 152 TONS
 PILE CAPACITY = 152,000 LBS (DL + LL)
 PILE CAPACITY = 202,600 LBS (W/ WIND OR EARTHQUAKE LOAD)
 UPLIFT CAPACITY OF PILES = 150 KIPS
 PILE TO BEAR AT ELEV +653.5' +/- (PILE LENGTH = 73'-0" FROM TOP OF PILE ELEV +726.5' ASSUMED)

NOTES: ADD FOR FLOOR, PIPE SUPPORTS, SPLASH PAD, VAULT ETC. PER PROJ PLANS AND SPECS
 ALL REINFORCING COVER IS TO BE 2" MINIMUM EXCEPT AS NOTED
 ARRANGE HOOKS ON PILE CENTER BARS TO NOT INTERFERE W/ ANCHOR BOLTS HAIRPINS



SUBJECT: 1,500 MG X 99' BCL WSD
 LOCATION: LOMBARD, IL
 REVISION: A

PREPARED BY/DATE: RBM 3/25/2025
 CHECKED BY/DATE: ___/___/___

CONTR.NO. 256546
 FILE NO.
 PAGE NO. 4.0

Design Data

Preliminary design, final design may vary but will comply with specifications.

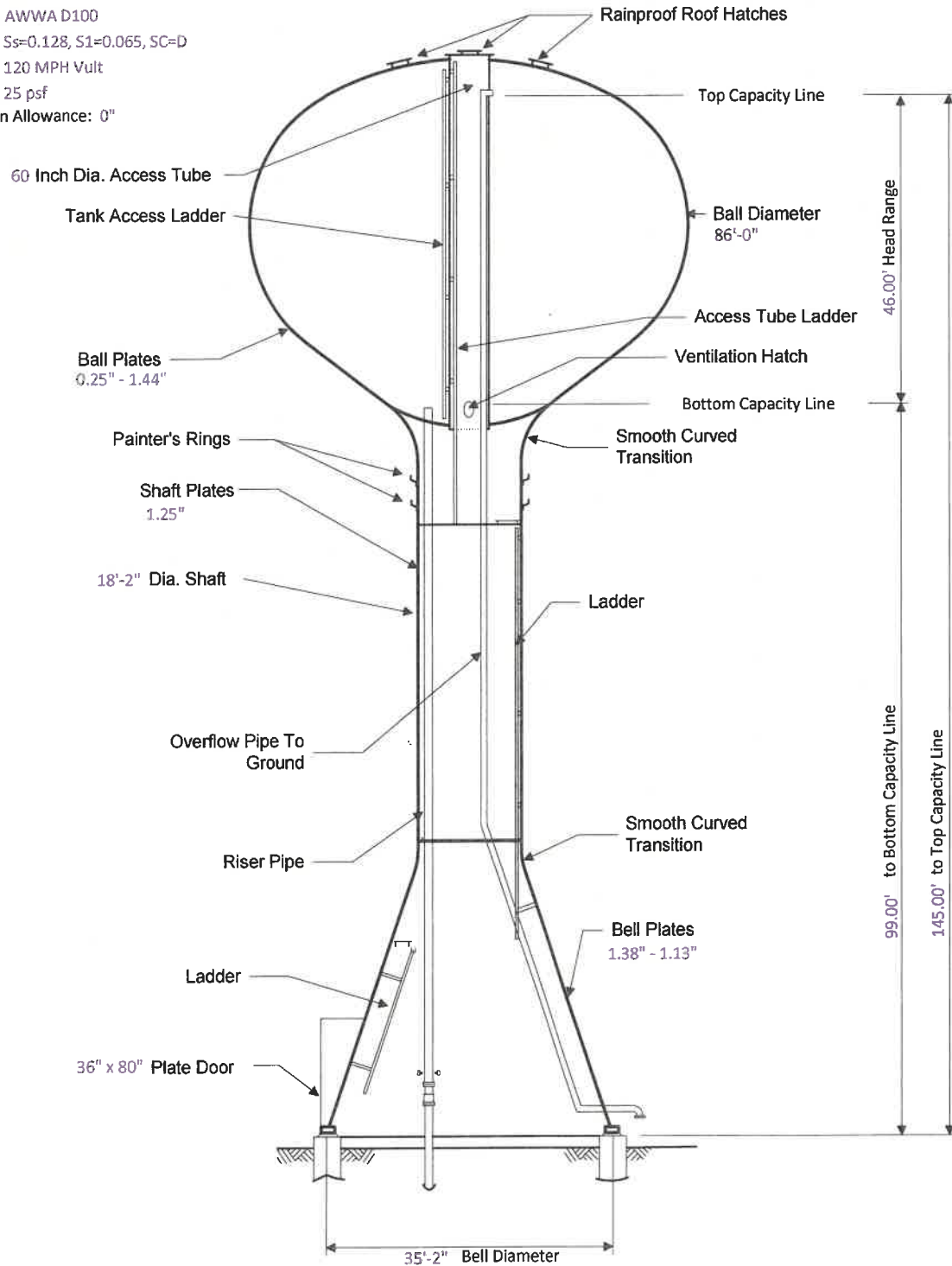
Code : AWWA D100

Seismic: $S_s=0.128$, $S_1=0.065$, $SC=D$

Wind: 120 MPH Vult

Snow: 25 psf

Corrosion Allowance: 0"



NOT TO SCALE



PROPOSED WATERSPHEROID®

1,500,000 Gallons Capacity

For Village of Lombard

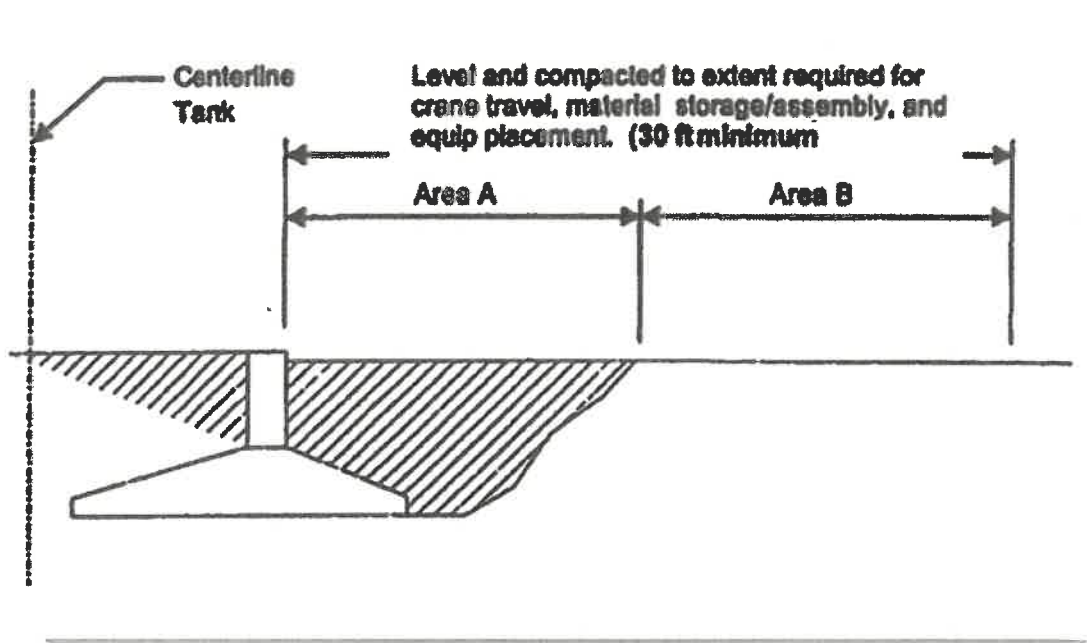
Location Lombard, IL

Minimum Site Preparation Guidelines for Tank Construction

The following site preparation requirements are intended to provide a safe working surface for typical CB&I sites. This document is generic in nature to cover all projects. CB&I project manager will provide all job specific item locations. The requirements of the owner's plans and specifications for backfill material and compaction shall govern if they are more stringent than the following requirements. All pipe utility excavations within the immediate tank site should be well compacted to prevent soft spots identical to those specified below.

Section I – Site Excavation and Backfill

Figure 1: Typical Excavation and Backfill



Area A

Area A is the area that is excavated, backfilled and compacted during construction of the foundation. Place common backfill material in 8 inch maximum lifts. Compact each lift to achieve a minimum in-place dry density of 100 pounds per cubic foot, or roughly the compaction effort required to attain 90% of Standard Proctor density. Depending on the time of year, location, and elapsed time from completion of foundation to tank erection, conditions may arise that prevent proper placement of backfill such as significant rainfall, winter weather resulting in frozen backfill, and/or uneven settlement over time. Steps should be taken to correct these conditions by the most appropriate means prior to tank erection to avoid unsafe site conditions.

Area B

Area B is the area undisturbed during construction of the foundation. A determination should be made as to the suitability of this area for construction purposes. In some situations, this may

require the removal of topsoil and organic material. If this area has been disturbed or consists of loose material, soft spots, etc. proof rolling may be required using similar equipment as used for Area A. Common backfill or granular material may be required to attain the desired grade. Place backfill in 8 inch maximum lifts. Compact each lift to achieve a minimum in-place dry density of 100 pounds per cubic foot, or roughly the compaction effort required to attain 90% of Standard Proctor density.

Section II – Grade

Crane capacity, and in some cases, complete operation of the crane, is impacted when site slopes exceed 2 percent. All reasonable efforts should be made to achieve this maximum slope. Grade areas A and B in Section I are to drain away from the foundation, but in no case slope more than 2%. If site slope of 2% maximum cannot be met, contact CB&I project manager. Swales may be needed to divert runoff water away from the site and areas of crane operation. No spoil piles are to remain within 100' of tank foundation.

Section III - Site Access, Crane Pad, and Other Required Gravel/Stone

While each site is unique, all will require access by heavy equipment and mobile cranes. The sketch below shows areas which must be finished with geo-fabric lapped a minimum of 12", and 1 to 1 ½" diameter crushed concrete (rebar free) or rock (#57 stone or equivalent) at a minimum of 12 inches thick. The 30'x30' gravel pad is required on **Composite Elevated Tanks (CET) only**. Provide gradual transitions between areas. Also provide a 3 cubic yard pile of #67 stone or road rock (Grade 8 or CA6), place this pile on plastic located as shown or per CB&I Project Manager. Remove rock upon completion of tank painting with final site work (on some jobsites it may be possible to bury the rock with final grading or used as fill elsewhere on site; contact CB&I for instructions). See Figure 2 for typical site layout.

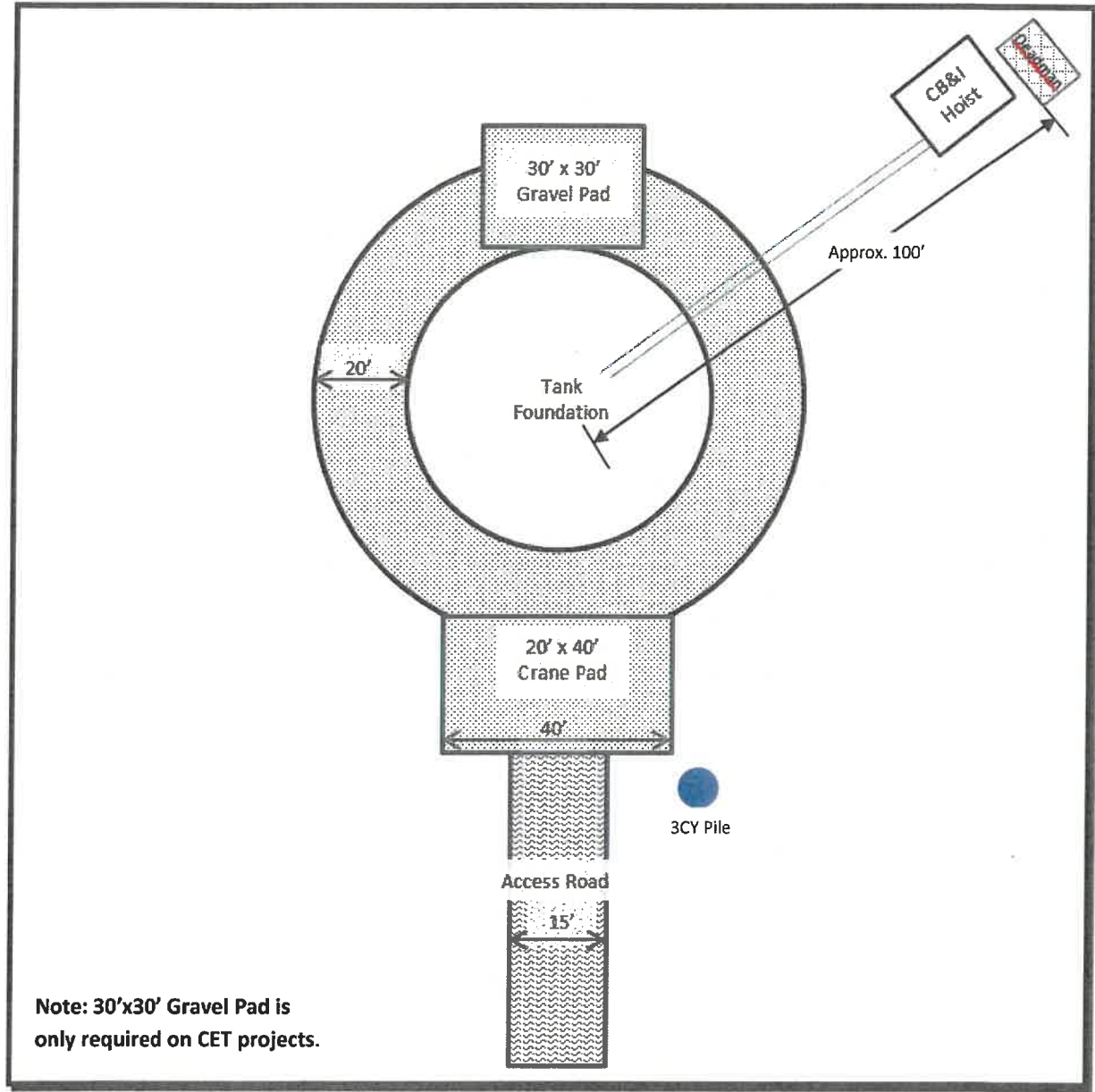
Section IV – Deadman Installation

The foundation/civil subcontractor shall include installation of CB&I provided dead-man consisting of a 6' x 6'-6" x 8" planked assembly buried approximately 5' in the ground and compacted properly. Location will be provided by CB&I Project Manager upon completion of foundation construction. Install cable using the "Two Point Tie-off" method shown in drawing 2H17-1. The remaining cable sticking out of the ground should be 3' apart, tangent to the foundation.

Section VI – Temporary Pipe Support(s)

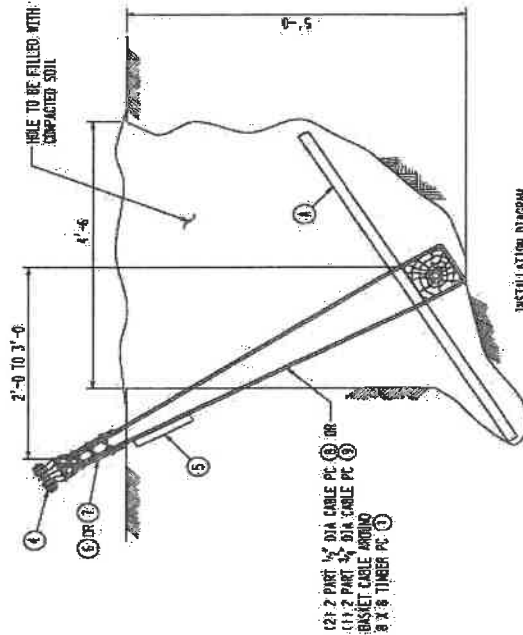
Having the permanent pipe support(s) installed before CB&I crews mobilize is the most desired outcome. If circumstances do not allow for the permanent pipe support(s) to be installed temporary pipe supports are required. Temporary pipe supports shall be constructed by stacking cribbing blocks in a manner that creates a stable base that will support the weight of the piping and will not allow the piping to shift. Cribbing blocks are defined as hardwood, either 6"x6" or 4"x4" with a length of 24 inches. Using saddle type pipe supports are also another appropriate method for supporting pipes. Using only two-by material to hold the piping in place is not acceptable, cribbing blocks are required to support the weight of the piping.

Figure 2: Typical Site layout



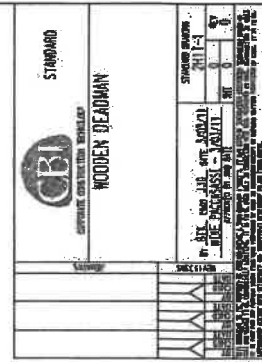
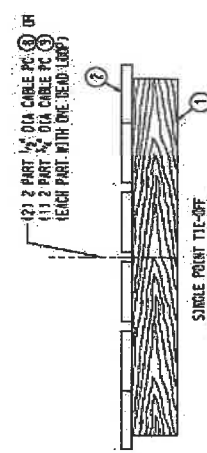
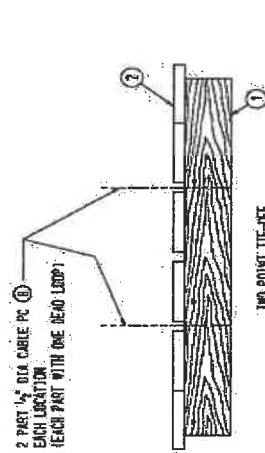
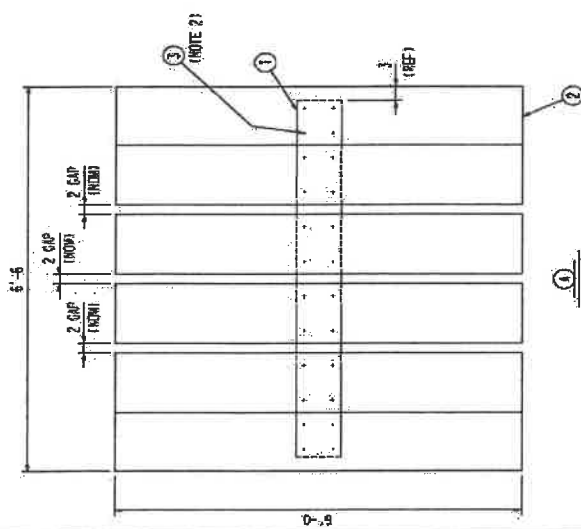
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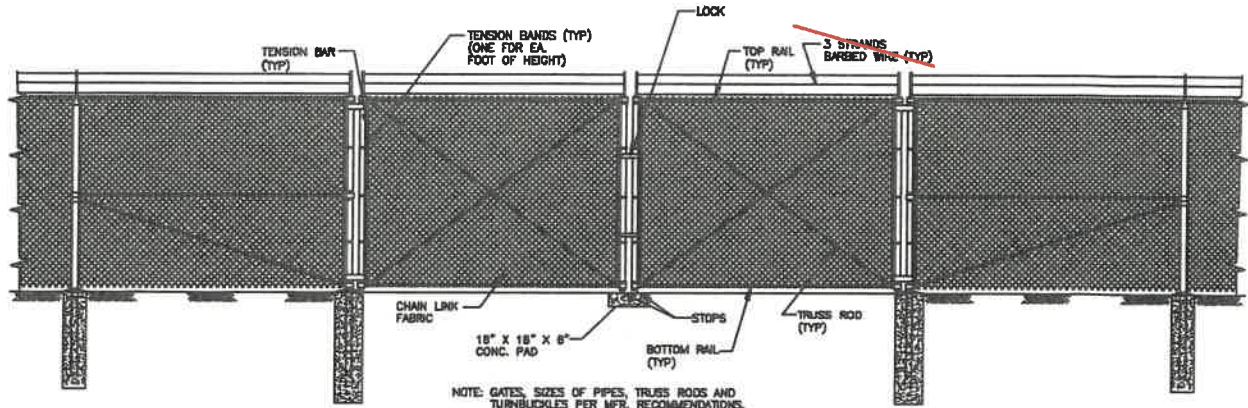
* - PERMISSIBLE WOOD TYPES ARE OAK, DOUGLAS FIR, OR SOUTHERN YELLOW PINE.



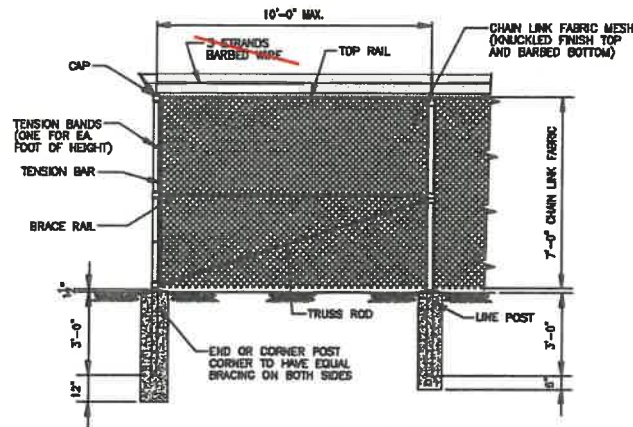
QUESTIONS

1. NO LAMINATED BOARDS ARE TO BE USED FOR HEADJAM.
2. NAIL SCAFFOLD BOMBO PC ② TO 6 X 8 TIMBER PC ①.



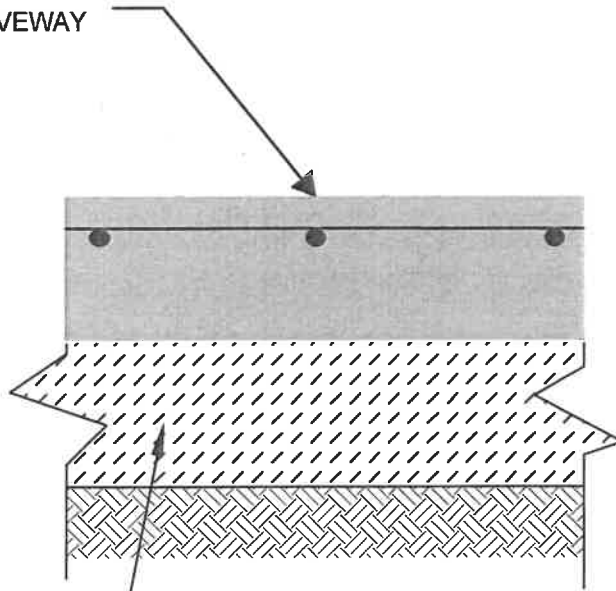


CHAIN LINK FENCE GATE DETAIL
NO SCALE



CHAIN LINK FENCE DETAIL
NO SCALE

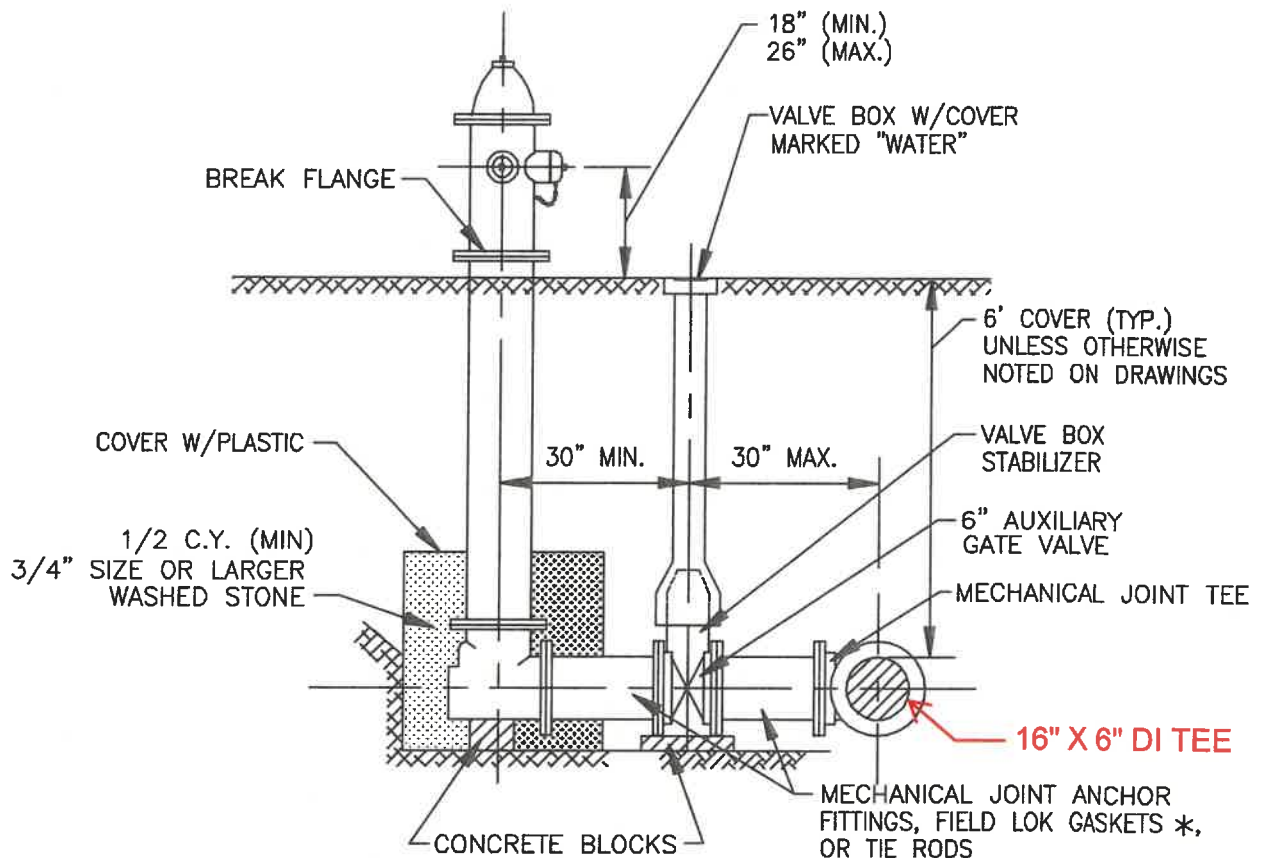
8" REINFORCED
CONCRETE DRIVEWAY



8" MINIMUM AGGREGATE BASE
COURSE (100% CRUSHED CA6)

TYPICAL COMMERCIAL DRIVEWAY
PAVEMENT SECTION

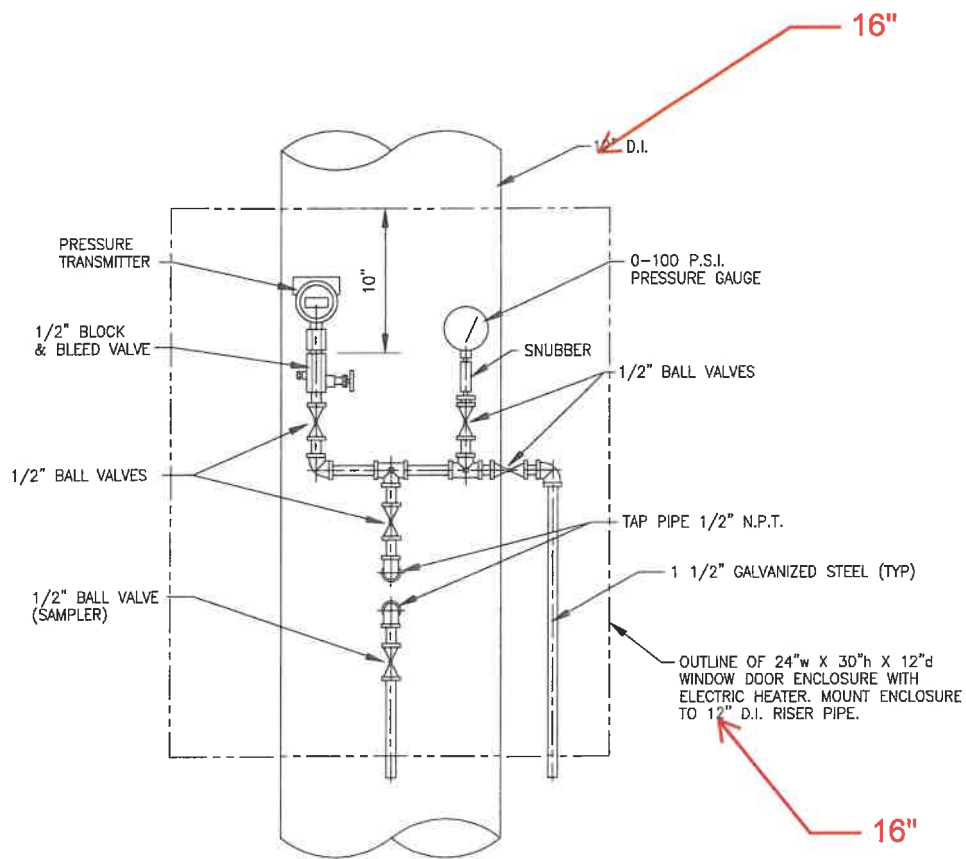
NO SCALE



* **NOTE:** MECHANICAL JOINT FITTINGS ARE NOT REQUIRED WHERE FIELD LOK GASKETS ARE UTILIZED.

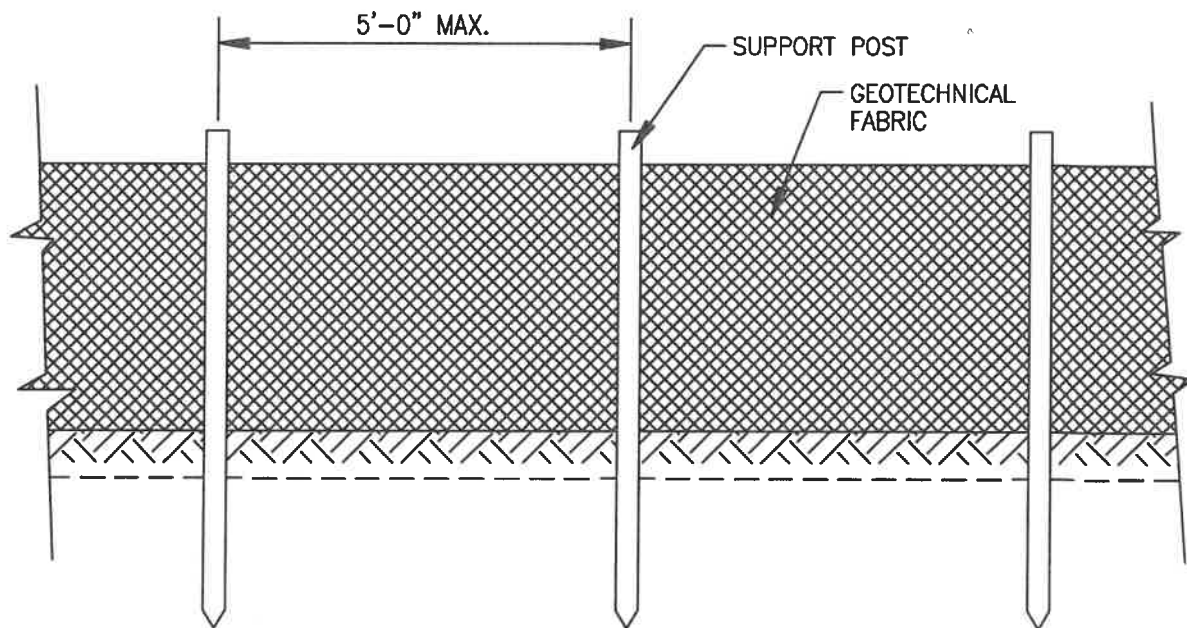
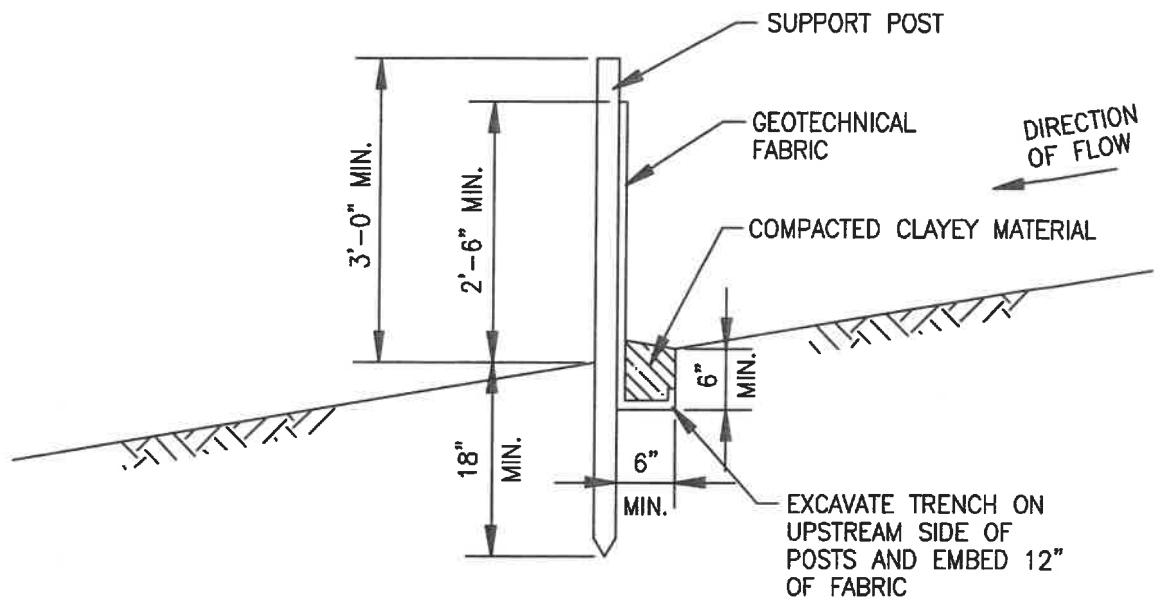
STANDARD FIRE HYDRANT INSTALLATION

NO SCALE



PRESSURE TRANSMITTER PIPING DETAIL

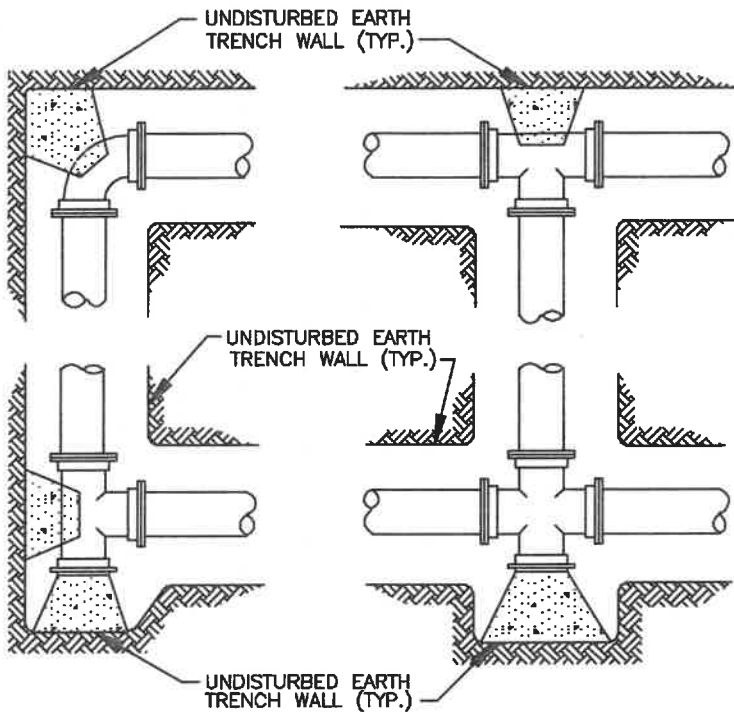
NO SCALE



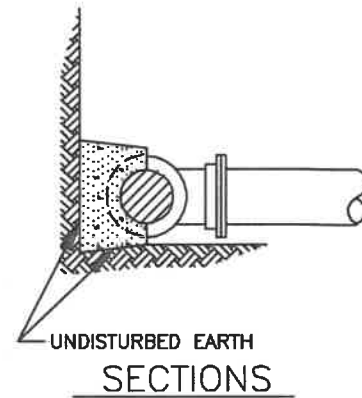
NOTE:
SILT FENCE INSTALLATION SHALL
COMPLY WITH AASHTO STANDARD
SPECIFICATION 288-00.

SILT FENCE DETAIL

NO SCALE



PLANS



NOTES

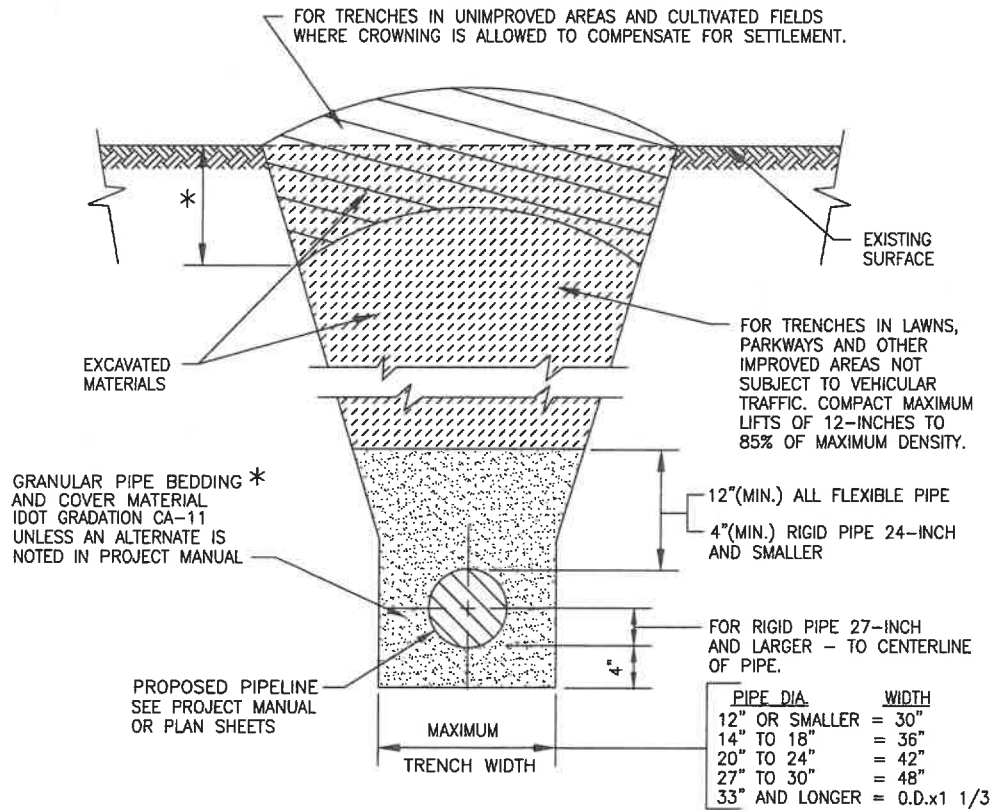
1. PROVIDE PRECAST OR CAST-IN-PLACE CONCRETE THRUST BLOCKS OF ADEQUATE SIZE AND THRUST BEARING SURFACE TO PREVENT MOVEMENT OF PIPELINE UNDER PRESSURE.
2. PLACE THE BASE AND THRUST BEARING SIDES OF THRUST BLOCK DIRECTLY AGAINST UNDISTURBED EARTH.
3. PLACE THRUST BLOCKING SO THE FITTING JOINTS WILL BE ACCESSIBLE FOR REPAIR.

TYPICAL THRUST BLOCK INSTALLATIONS

NO SCALE

NOTE:
PROJECT MANUAL REFERS TO "PROJECT SPECIFICATIONS",
NOT TO IDOT STANDARD SPECIFICATIONS.

* FARM FIELDS, GARDENS, AND WETLAND AREAS MAY
REQUIRE STRIPPING, STOCKPILING, AND REPLACING
ORIGINAL MATERIAL TO A SPECIFIC DEPTH. SEE
PROJECT MANUAL OR GENERAL NOTES FOR REQUIREMENTS.



TYPICAL TRENCH DETAIL

NO SCALE

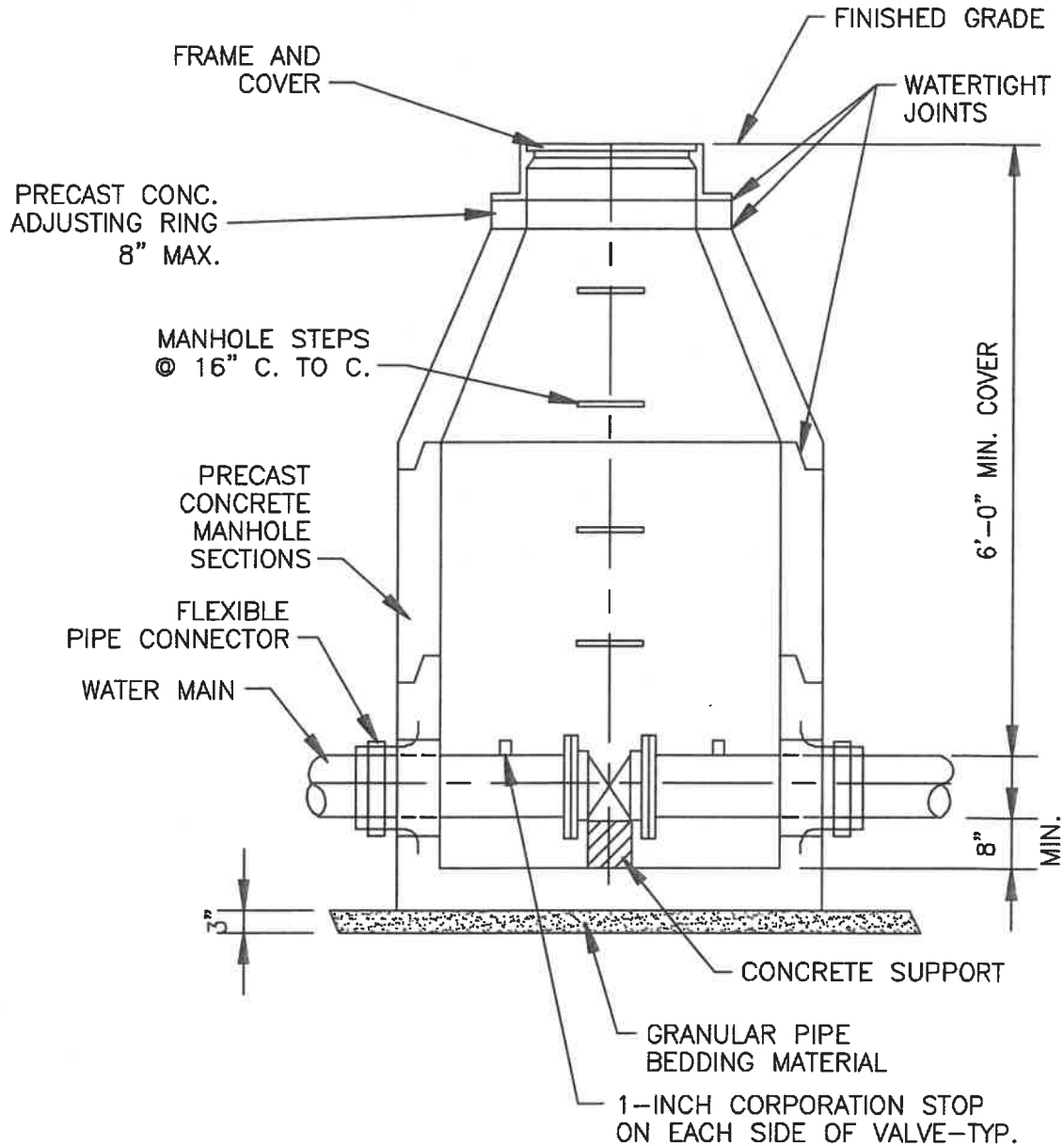
FOR NON-PAVED AREAS

* FOR FLEXIBLE THERMOPLASTIC OR HDPE PIPE COMPLY WITH
ASTM 2321, CLASS I OR II.

FOR RIGID PIPE COMPLY WITH ASTM C12, BEDDING CLASS B.

NOTES:

1. CONCENTRIC CONE REQUIRED
2. USE 4'-0" DIAMETER
FOR WATER MAIN SIZES 4" THRU
8", 5'-0" FOR SIZES 10" THRU 14",
6'-0" (OR LARGER PER DESIGNER)
FOR 16" OR GREATER



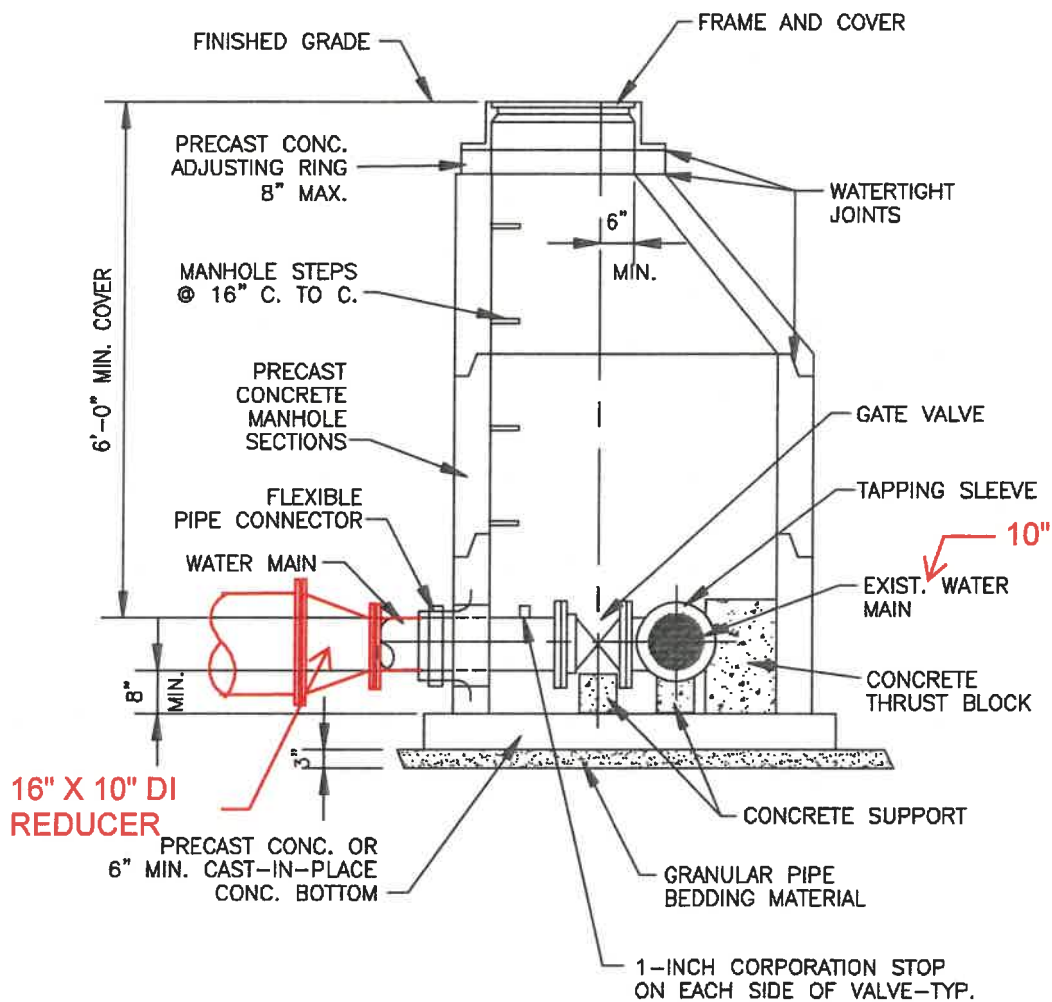
WATER VALVE VAULT DETAIL

NO SCALE

VAULT-WATER VALVE PRESS CONN.DWG

NOTES:

1. ECCENTRIC CONE REQUIRED
2. USE 4'-0" DIAMETER
FOR WATER MAIN SIZES 4" THRU 8",
USE 5'-0" DIAMETER
FOR WATER MAIN SIZES 10" THRU 14",
USE 6'-0" DIAMETER (OR LARGER PER DESIGNER)
FOR WATER MAIN SIZES 16" OR GREATER.



PRESSURE CONNECTION WATER VALVE VAULT DETAIL

NO SCALE