

# PRELIMINARY ENGINEERING PLAN FOR NAPERVILLE POLO CLUB

BEING A PART OF THE SOUTHEAST QUARTER OF SECTION 22, TOWNSHIP 37 NORTH,  
RANGE 9 EAST OF THE THIRD PRINCIPAL MERIDIAN IN WILL COUNTY ILLINOIS.

### LEGEND

EXISTING	PROPOSED	DESCRIPTION
		MANHOLE
		CATCH BASIN
		INLET
		CLEANOUT
		SLOPE INLET BOX
		HEADWALL
		END SECTION
		STORM SEWER
		SANITARY SEWER
		FORCEMAIN
		WATERMAIN
		VALVE & BOX
		WATER VALVE IN VAULT
		FIRE HYDRANT
		CONTOURS
		ELEVATIONS
		STREET LIGHT - ACUITY 23 W, 3000K LED 23' MH
		STREET LIGHT - ACUITY 40 W, 3000K LED 23' MH
		STREET LIGHT - ACUITY 209 W, 4000K LED 40' MH
		WATERMAIN PROTECTION
		RIP-RAP
		OVERFLOW ROUTE



## LOCATION MAP

### BENCHMARKS/CONTROL POINTS

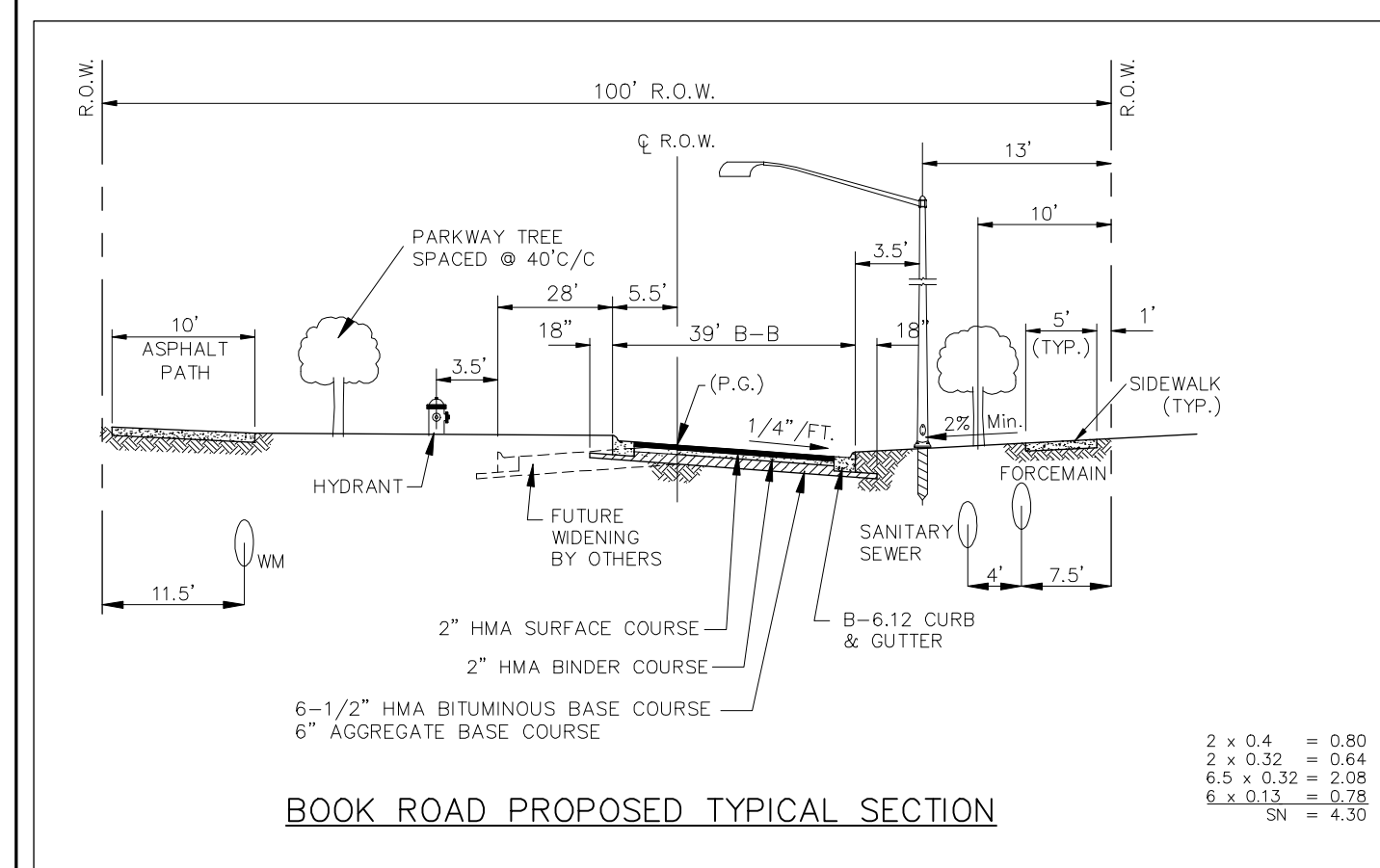
**CITY OF NAPERVILLE BENCHMARK STATION NO. 1001:** BERNSTEIN 3D TOP SECURITY MONUMENT, CONSISTING OF A 9/16" DIA. STAINLESS STEEL DATUM POINT ON THREADED 9/16" X 4" LONG ROD TOTALING (16") IN LENGTH WITH GREASED TOP SECURITY SLEEVE ENCLOSED IN SAND AND 6" PVC PIPE WITH BMAC 6 ALUMINUM ACCESS COVER. LOCATED AT THE NORTHEAST CORNER OF WILD TIMOTHY ROAD AND SWITCHGRASS LANE. MONUMENT LOCATED 50.81 FEET EAST OF 'X' CUT ON NORTH RIM OF VALVE VAULT LOCATED AT THE NORTHWEST CORNER OF WILD TIMOTHY ROAD AND SWITCHGRASS LANE, AND 73.21 FEET NORTH OF 'X' CUT ON NORTH RIM OF VALV VAULT LOCATED AT THE SOUTHEAST CORNER OF WILD TIMOTHY ROAD AND SWITCHGRASS LANE. ELEVATION: 651.59 NAVD 88

**BENCHMARK #13** - RR SPIKE SET IN WEST FACE OF UTILITY POLE AT THE NORTHWEST CORNER OF 119TH STREET AND BOOK ROAD. ELEV. = 620.29 NAVD 88

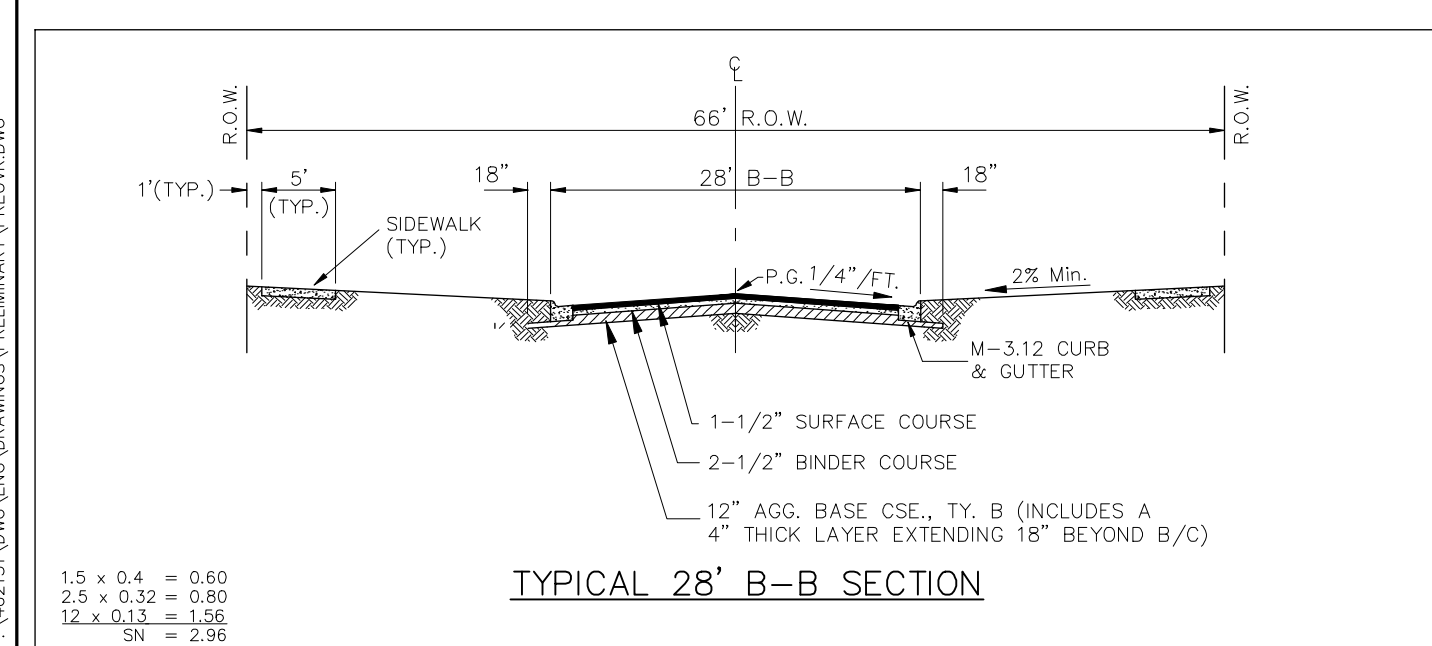
**BENCHMARK #16** - RR SPIKE SET IN 11TH UTILITY POLE WEST OF BOOK ROAD. ELEV. = 632.52 NAVD 88

### CONTROL POINTS

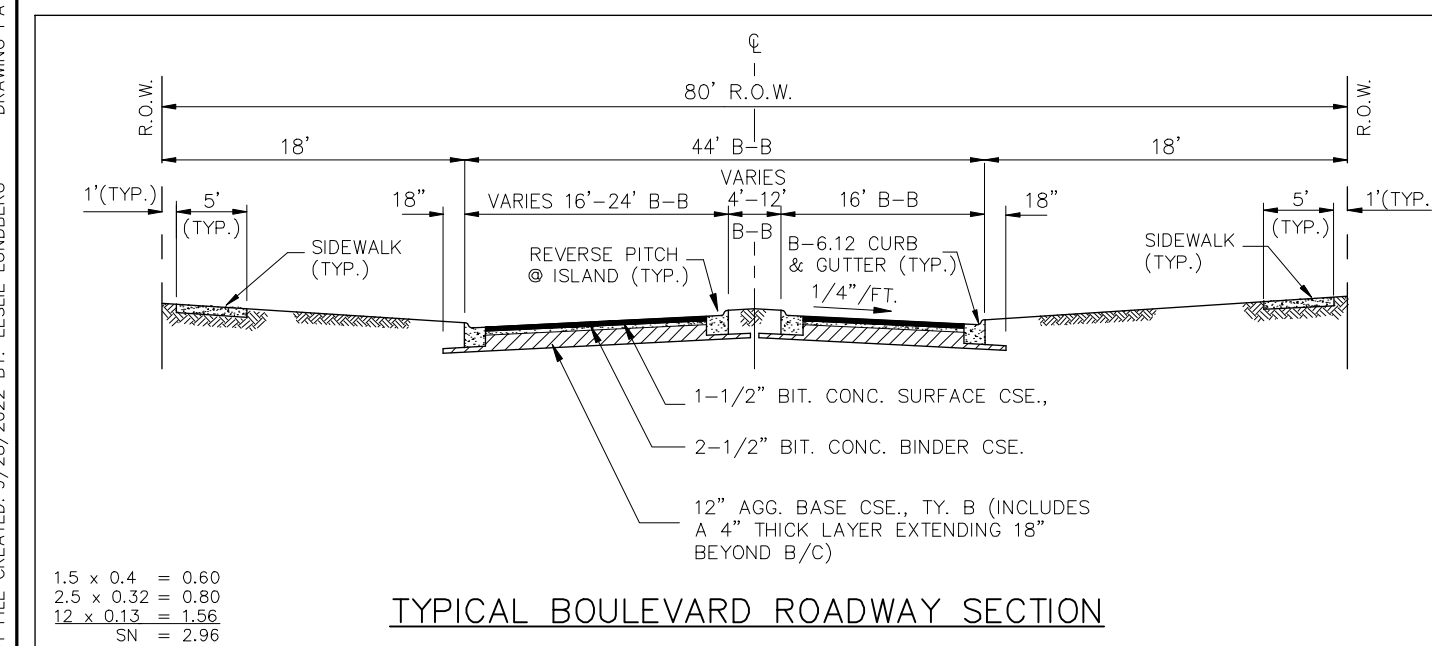
**CP #104** - FOUND 'X' IN TOP OF CURB ON EAST SIDE OF HAWKWEED DRIVE APPROXIMATELY 13 FEET NORTH OF SUBJECT SITE.  
 NORTHING: 1822362.98  
 EASTING: 1022555.01  
 ELEVATION: 637.10 NAVD 88



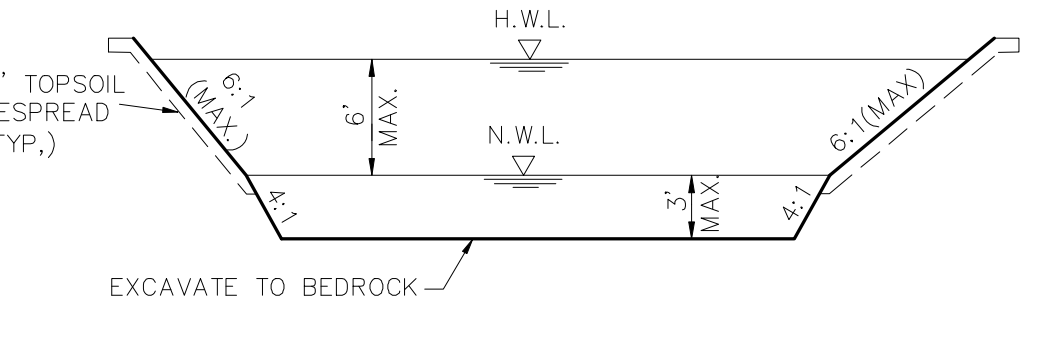
BOOK ROAD PROPOSED TYPICAL SECTION



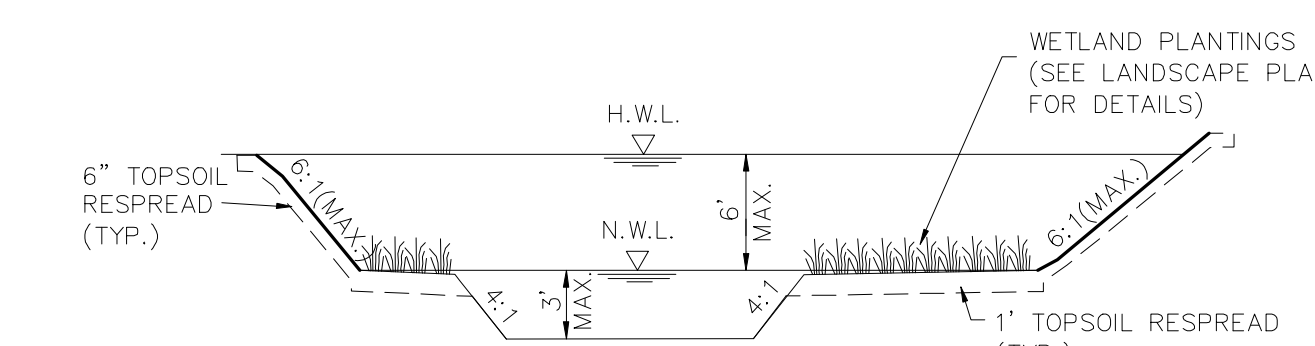
TYPICAL 28' B-B SECTION



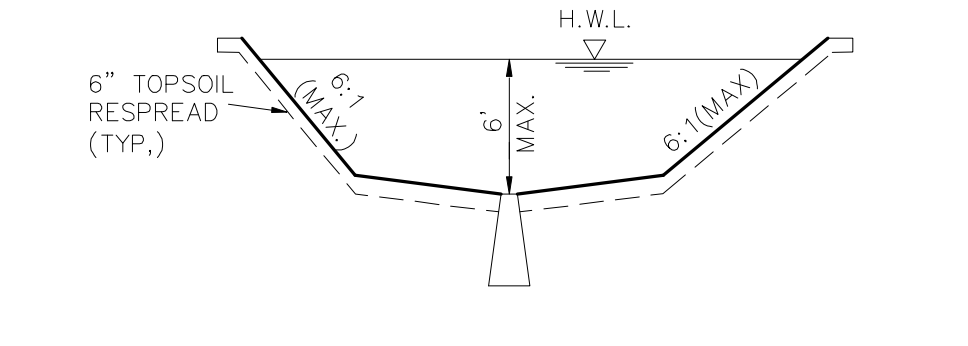
TYPICAL BOULEVARD ROADWAY SECTION



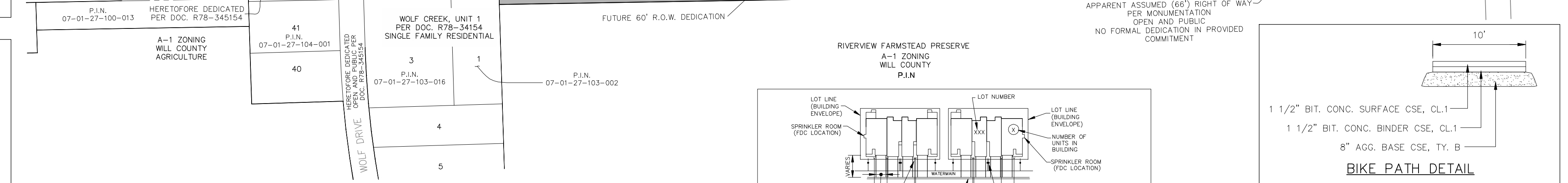
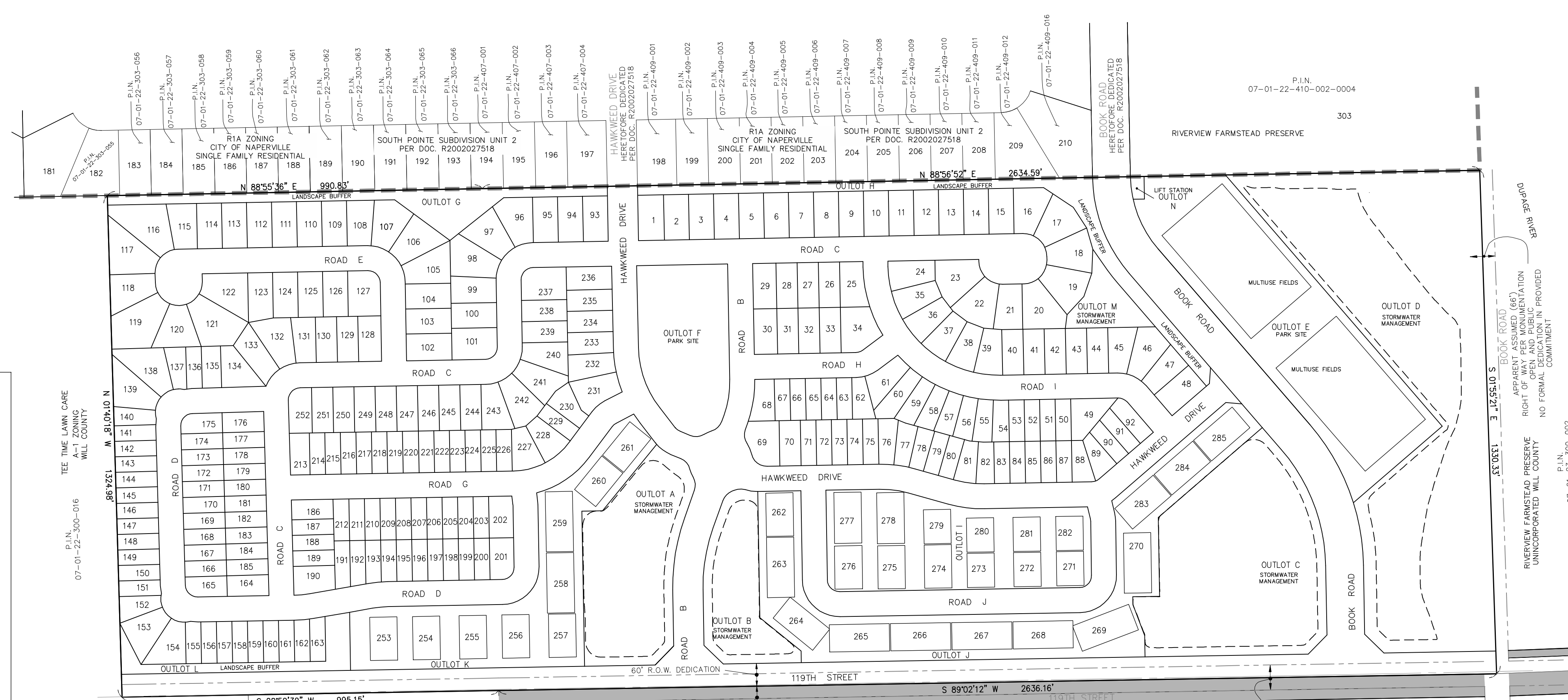
TYPICAL SECTION A-A  
STORMWATER MANAGEMENT FACILITY  
(FOR OUTLOTS A, B, & C)



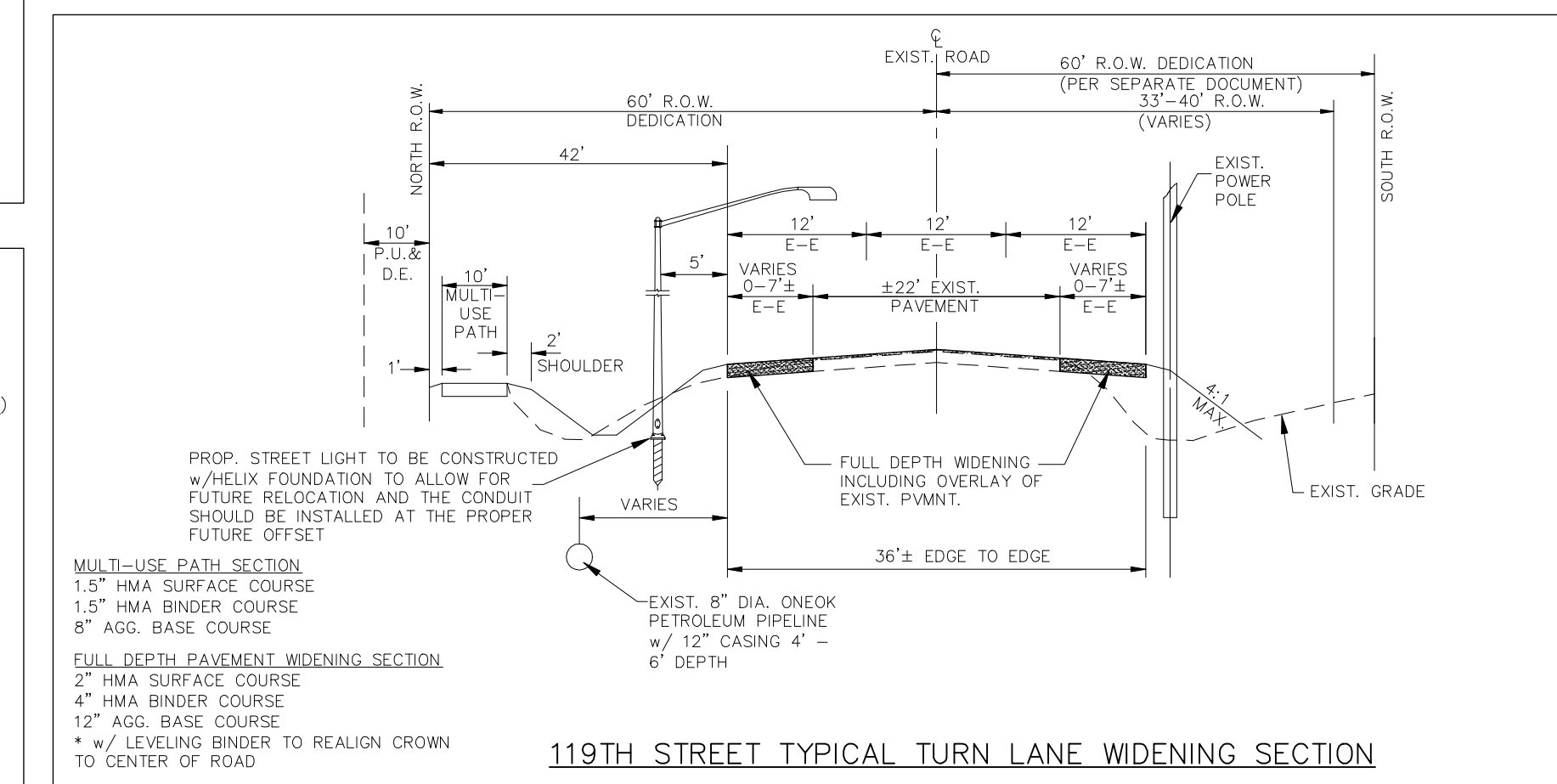
TYPICAL SECTION B-B  
STORMWATER MANAGEMENT FACILITY  
(FOR OUTLOT D)



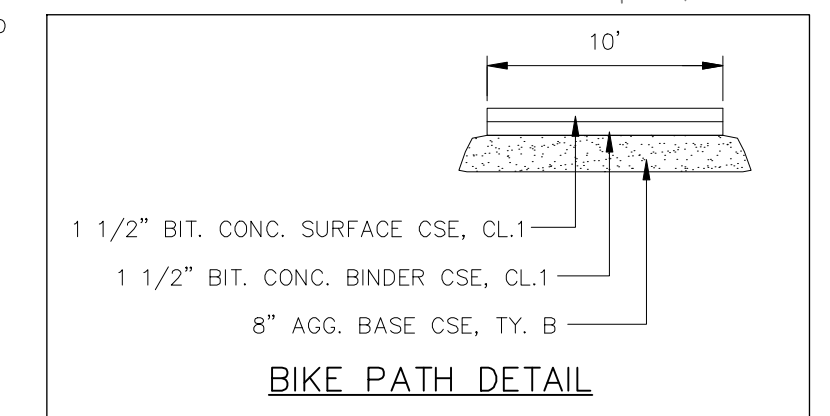
TYPICAL SECTION C-C  
STORMWATER MANAGEMENT FACILITY  
(FOR OUTLOT M)



TYPICAL ATTACHED SINGLE FAMILY  
(N.T.S.)



119TH STREET TYPICAL TURN LANE WIDENING SECTION



BIKE PATH DETAIL

- ### NOTES
- DIMENSIONS SHOWN ALONG CURVED LINES ARE ARC DISTANCES.
  - ALL RIGHT-OF-WAYS ARE TO BE PUBLIC DEDICATIONS.
  - ALL STREETS, UTILITY PIPES AND MAINS SHALL BE PUBLICLY OWNED AND MAINTAINED.
  - STORMWATER STORAGE TO BE PROVIDED AND THE DESIGN OF STORMWATER MANAGEMENT FACILITIES SHALL BE IN ACCORDANCE WITH CITY OF NAPERVILLE AND WILL COUNTY REQUIREMENTS.
  - UNLESS OTHERWISE NOTED ALL WATERMAIN AND SANITARY SEWER TO BE 8" DIAMETER.
  - ALL SANITARY SEWER CONNECTIONS TO SANITARY SEWER MAINS MUST HAVE AN OVERHEAD SEWER SYSTEM WITHIN THE BUILDING.
  - ANY TRAILS NOT IN PUBLIC RIGHT-OF-WAY WILL BE MAINTAINED BY THE HOME OWNERS' ASSOCIATION.
  - APPROPRIATE SIGNAGE AND STRIPING WILL BE PROVIDED WITH THE FINAL ENGINEERING PLANS.
  - ANY EXISTING WELL AND SEPTIC FIELDS SHALL BE ABANDONED ACCORDING TO COUNTY HEALTH DEPARTMENT. DOCUMENTATION TO BE PROVIDED TO THE CITY.
  - DP-U-E REQUIRES A MINIMUM 5' OF SEPARATION BETWEEN ITS ELECTRIC FACILITIES AND ANY FIRE HYDRANTS, STORM DRAINS, STORM SEWERS, WATER MAINS, GAS MAINS, ETC. THAT RUN PARALLEL TO ITS FACILITIES.
  - NO TREES, SHRUBS, OR OBSTACLES WILL BE ALLOWED WITHIN 10' OF THE FRONT, OR WITHIN 5' OF THE SIDES/REAR, OF THE TRANSFORMER, OR WITHIN 5' OF UNDERGROUND CABLE. CONCRETE FILLED PIPE BOLLARDS SHALL BE INSTALLED IF THE TRANSFORMER IS IN AN AREA WHERE THERE IS VEHICULAR MOVEMENT.

### SITE DATA

a). TOTAL AREA	110.57 AC. ±
b). PROPOSED ZONING	R2 PUD
c). 119TH STREET DEDICATION	5.00 AC. ±
d). BOOK ROAD DEDICATION	3.41 AC. ±
e). INTERNAL R.O.W.	19.78 AC. ±
f). NET AREA (TOTAL AREA LESS DEDICATIONS AND R.O.W.)	80.04 AC. ±
g). NET AREA (TOTAL AREA LESS DEDICATIONS AND R.O.W.)	74.34 AC. ±
h). OPEN SPACE (STORMWATER/Common Area/Landscape Buffer)	29.44 AC. ±
i). LIFT STATION (OUTLOT N)	0.05 AC. ±
j). OPEN SPACE (P.U.D. STANDARDS)	37.91%
k). RESIDENTIAL UNITS:	
TOWNES (SINGLE FAMILY ATTACHED)	149
FRONT SETBACK	25 FT.
CORNER SIDE YARD SETBACK	15 FT.
REAR YARD SETBACK	25 FT.
BUILDING SEPARATION	
FRONT TO FRONT	61 FT.
REAR TO REAR	50 FT.
SIDE TO SIDE	12 FT.
REAR TO SIDE	30 FT.
MEADOWS (SINGLE FAMILY DETACHED)	54
MINIMUM LOT SIZE	6,720 S.F.
AVERAGE LOT SIZE	7,491 S.F.
MAXIMUM LOT SIZE	10,499 S.F.
FRONT YARD SETBACK	25 FT.
CORNER SIDE YARD SETBACK	15 FT.
INTERIOR SIDE YARD SETBACK	6 FT. MIN. w/COMBINED 16 FT. TOTAL
REAR YARD SETBACK	25 FT.
ESTATES (SINGLE FAMILY DETACHED)	59
MINIMUM LOT SIZE	7,903 S.F.
AVERAGE LOT SIZE	9,184 S.F.
MAXIMUM LOT SIZE	15,448 S.F.
FRONT YARD SETBACK	25 FT.
CORNER SIDE YARD SETBACK	15 FT.
INTERIOR SIDE YARD SETBACK	6 FT. MIN. w/COMBINED 16 FT. TOTAL
REAR YARD SETBACK	25 FT.
SPRINGS (SINGLE FAMILY DETACHED)	139
MINIMUM LOT SIZE	4,510 S.F.
AVERAGE LOT SIZE	5,105 S.F.
MAXIMUM LOT SIZE	11,738 S.F.
FRONT YARD SETBACK	20 FT.
CORNER SIDE YARD SETBACK	10 FT.
INTERIOR SIDE YARD SETBACK	5 FT. MIN. w/COMBINED 11 FT. TOTAL
REAR YARD SETBACK	20 FT.
TOTAL UNITS	401
mi. GROSS MODIFIED DENSITY	3.93 DU/AC.
n). LOT AREA	
REQUIRED	
SINGLE FAMILY DETACHED (6,000 X 252)	1,512,000 S.F.
SINGLE FAMILY ATTACHED (4,000 X 149)	596,000 S.F.
TOTAL REQUIRED AREA	2,108,000 S.F.
PROVIDED	
SINGLE FAMILY DETACHED	1,655,966 S.F.
SINGLE FAMILY ATTACHED	559,852 S.F.
TOTAL	2,215,818 S.F.
DIFFERENCE	107,818 S.F.
o). TOWNHOME GUEST PARKING	
REQUIRED	12.25 SPACES PER UNIT @ 149 TH) = 336 SPACES
PROVIDED	596 SPACES
p). MULTIUSE FIELDS PARKING	
REQUIRED	70 SPACES
PROVIDED	75 SPACES

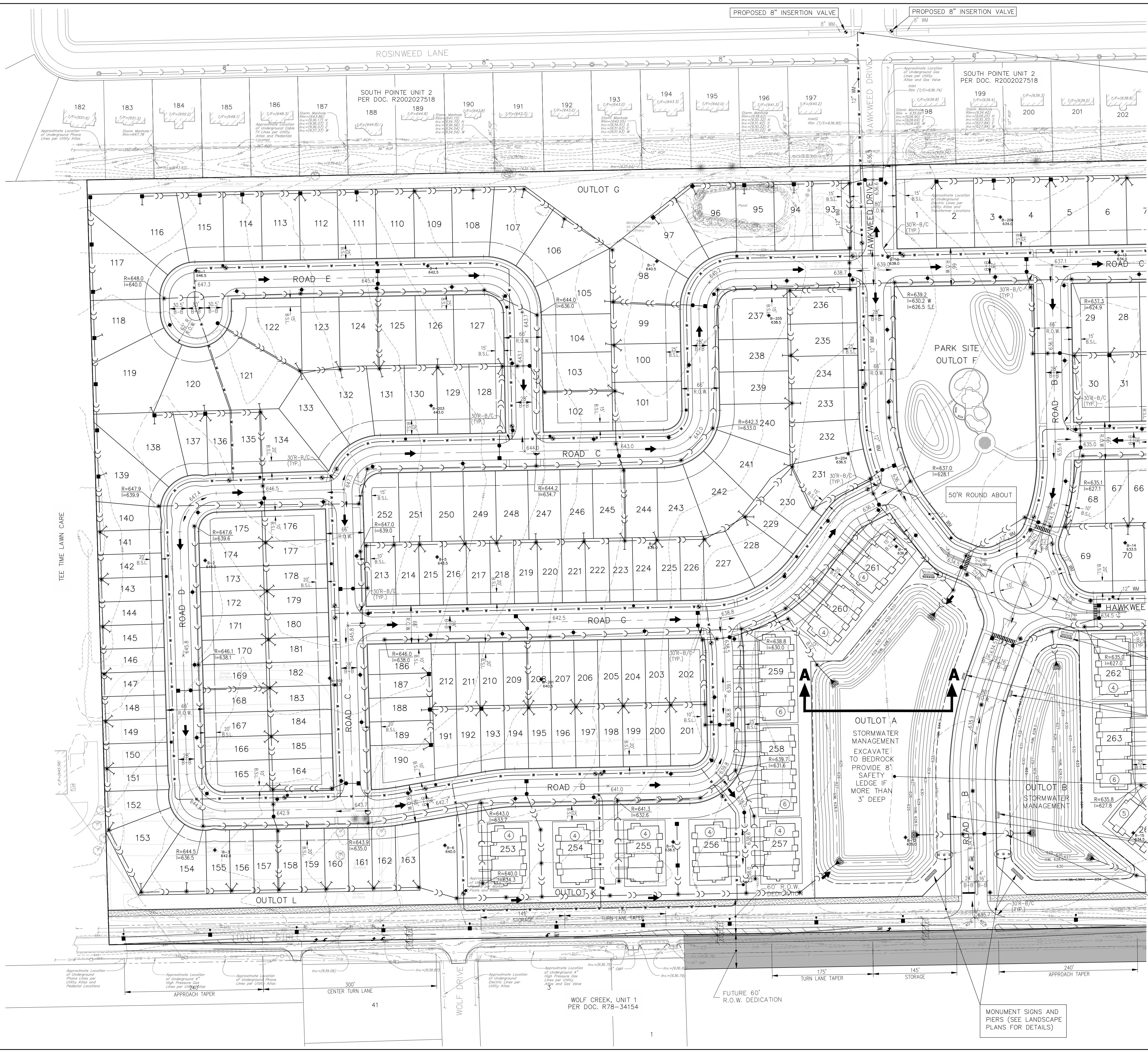
PREPARED FOR:  
**PULTE HOME COMPANY, LLC**  
 1900 E. GOLF ROAD, SUITE 300  
 SCHAUMBURG, IL 60173  
 (847) 230-5400

PREPARED BY:  
  
**CEMCON, Ltd.**  
 Consulting Engineers, Land Surveyors & Planners  
 2280 White Oak Circle, Suite 100  
 Aurora, Illinois 60502-9675  
 PH: 630.862.2100 FAX: 630.862.2199  
 E-Mail: info@cemcon.com Website: www.cemcon.com

DISC NO.: 402151 FILE NAME: PREVOR  
 DRAWN BY: LAL FLD. BK. / PG. NO.: ---  
 COMPLETION DATE: 06-06-2022 JOB NO.: 402.151  
 XREF: TOPO PROJECT MANAGER: CRM  
 07-22-22/LAL REVISED PER CITY REVIEW COMMENTS RECEIVED 7/15/22  
 08-17-22/LAL REVISED PER CITY REVIEW COMMENTS RECEIVED 8/9/22  
 08-26-22/LAL REVISED PER CITY REVIEW COMMENTS RECEIVED 9/15/22  
**PRELIMINARY ENGINEERING PLAN FOR POLO CLUB**  
 CITY OF NAPERVILLE PROJECT NO. 22-1000056  
 (SHEET 1 OF 6)

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PLOT FILE CREATED 9/28/2022 BY: LESLIE LUNDBERG

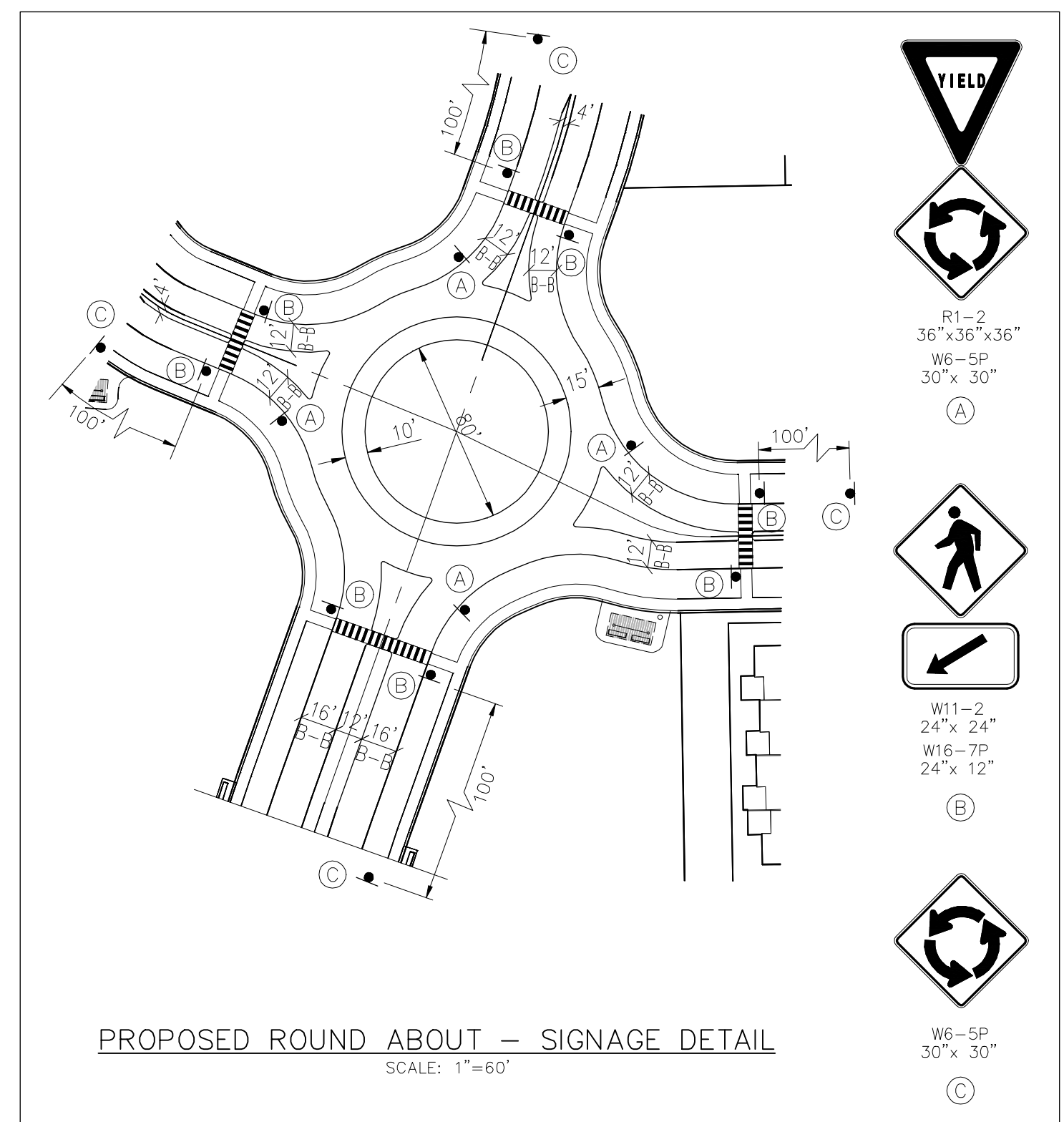
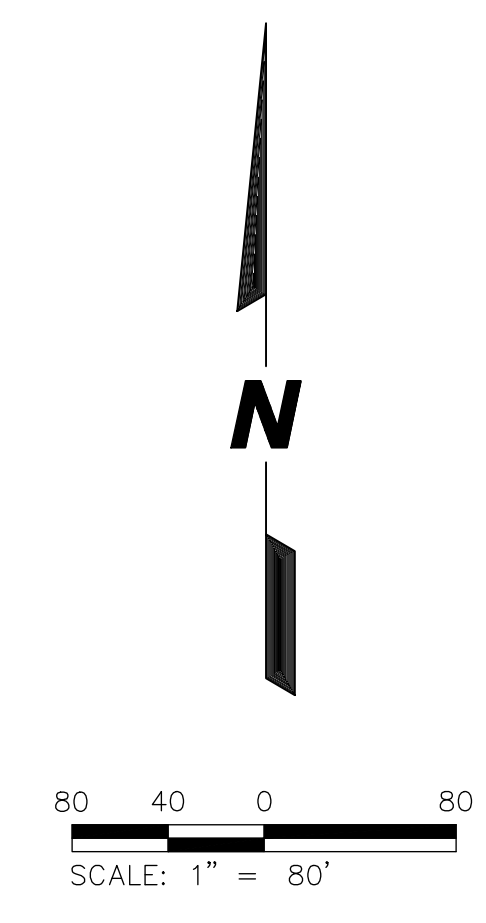


CONNECT TO EXISTING WATERMAIN  
w/8"x8"x12" CUT IN TEE

PROPOSED EMERGENCY ACCESS  
GATE w/THE FOLLOWING SIGNS  
TO BE INSTALLED ON THE GATE

**EMERGENCY ACCESS ONLY**

**GATE TO BE REMOVED UPON  
COMPLETION OF 119TH STREET  
ROADWAY IMPROVEMENTS**



SITTING AREAS  
(SEE LANDSCAPE PLANS  
FOR DETAILS)

CONCRETE BENCH PADS  
(SEE LANDSCAPE PLANS  
FOR DETAILS)

STORMWATER MANAGEMENT FACILITY 004  
HWL = 634.0  
NWL = 628.0  
STORMWATER MANAGEMENT REQUIRED=10.75 AC./FT.  
STORMWATER MANAGEMENT PROVIDED=10.96 AC./FT.

CONCRETE BENCH PADS  
(SEE LANDSCAPE PLANS  
FOR DETAILS)

EQUALIZER PIPE

OUTLOT A  
STORMWATER  
MANAGEMENT  
EXCAVATE TO  
BEDROCK  
PROVIDE 8'  
SAFETY  
LEDGE IF  
MORE THAN  
3' DEEP

OUTLOT B  
STORMWATER  
MANAGEMENT

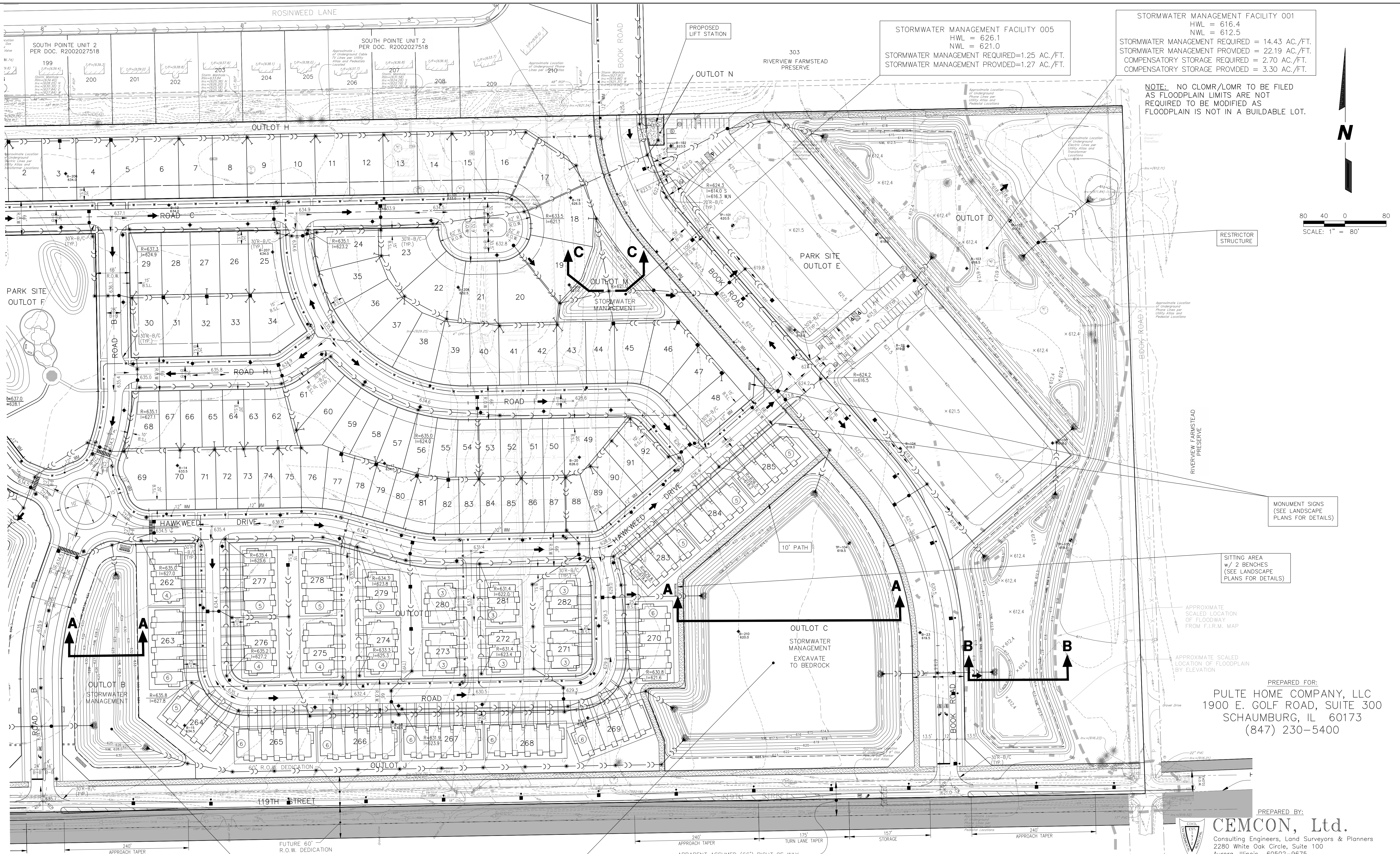
MONUMENT SIGNS AND  
PIERS (SEE LANDSCAPE  
PLANS FOR DETAILS)

PREPARED FOR:  
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1900 E. GOLF ROAD, SUITE 300  
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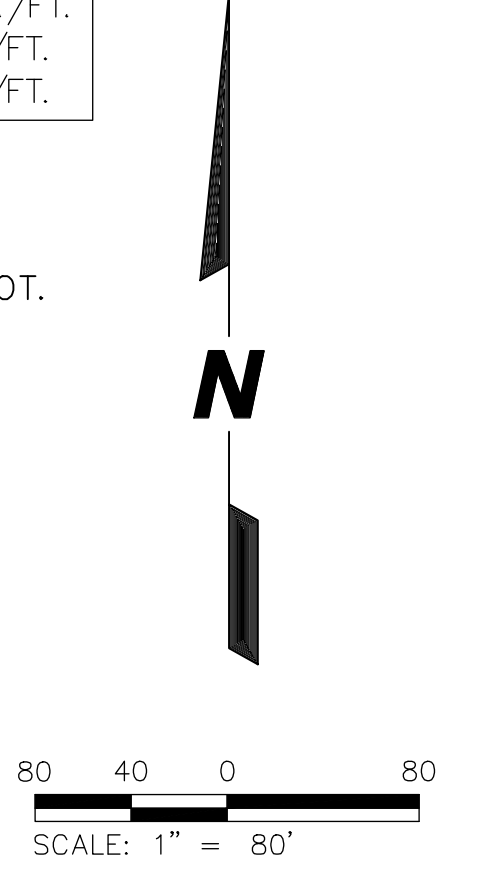
STORMWATER MANAGEMENT FACILITY 001  
 HWL = 616.4  
 NWL = 612.5  
 STORMWATER MANAGEMENT REQUIRED = 14.43 AC./FT.  
 STORMWATER MANAGEMENT PROVIDED = 22.19 AC./FT.  
 COMPENSATORY STORAGE REQUIRED = 2.70 AC./FT.  
 COMPENSATORY STORAGE PROVIDED = 3.30 AC./FT.

STORMWATER MANAGEMENT FACILITY 005  
 HWL = 626.1  
 NWL = 621.0  
 STORMWATER MANAGEMENT REQUIRED=1.25 AC./FT.  
 STORMWATER MANAGEMENT PROVIDED=1.27 AC./FT.

STORMWATER MANAGEMENT FACILITY 002  
 HWL = 623.5  
 NWL = 617.5  
 STORMWATER MANAGEMENT REQUIRED=22.39 AC./FT.  
 STORMWATER MANAGEMENT PROVIDED=22.53 AC./FT.

STORMWATER MANAGEMENT FACILITY 003  
 HWL = 633.9  
 NWL = 628.0  
 STORMWATER MANAGEMENT REQUIRED=4.37 AC./FT.  
 STORMWATER MANAGEMENT PROVIDED=4.43 AC./FT.

NOTE: NO CLOMR/LOMR TO BE FILED AS FLOODPLAIN LIMITS ARE NOT REQUIRED TO BE MODIFIED AS FLOODPLAIN IS NOT IN A BUILDABLE LOT.



MONUMENT SIGNS  
 (SEE LANDSCAPE PLANS FOR DETAILS)

SITTING AREA  
 W/ 2 BENCHES  
 (SEE LANDSCAPE PLANS FOR DETAILS)

APPROXIMATE SCALED LOCATION OF FLOODWAY FROM F.I.R.M. MAP

APPROXIMATE SCALED LOCATION OF FLOODPLAIN BY ELEVATION

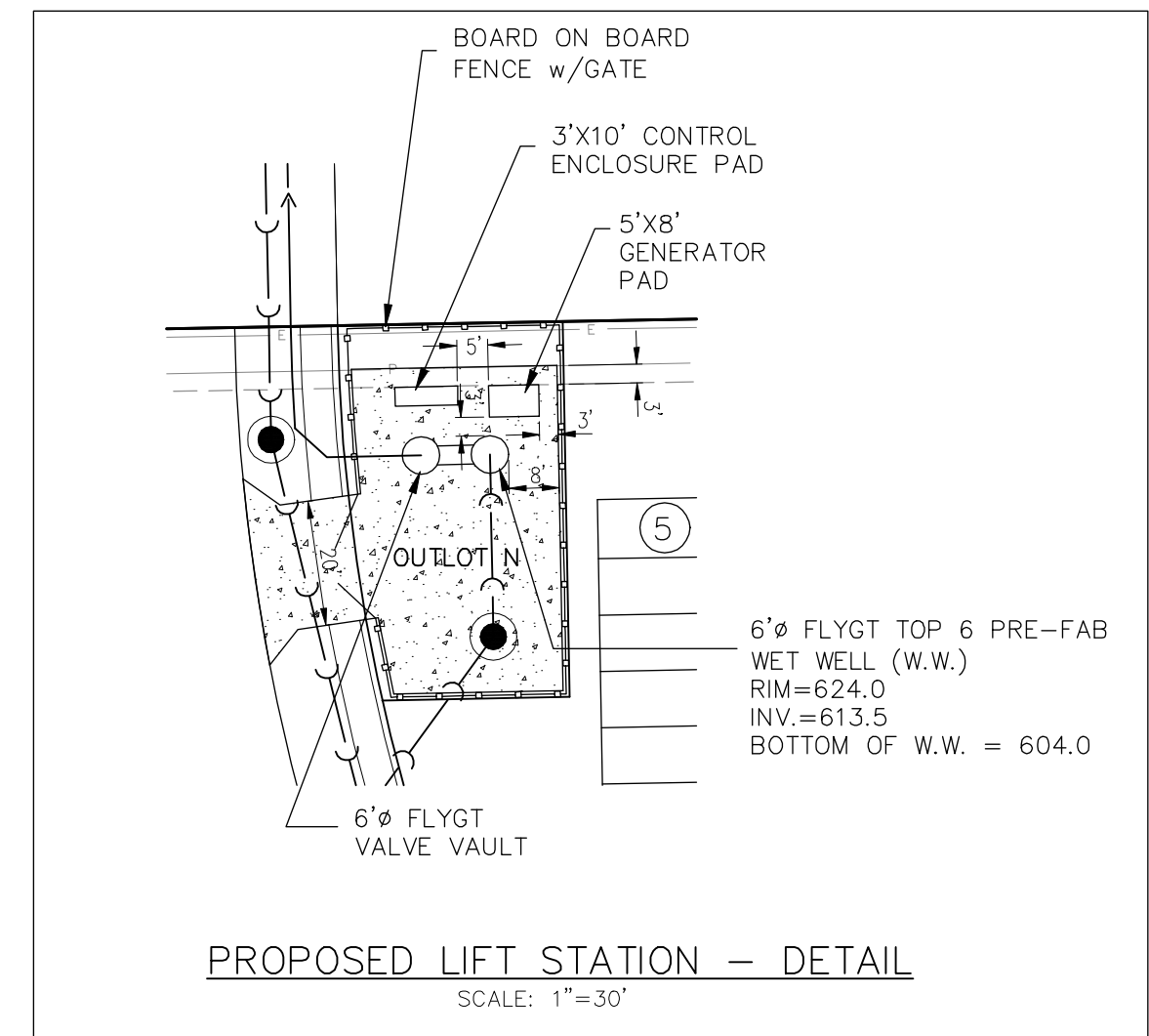
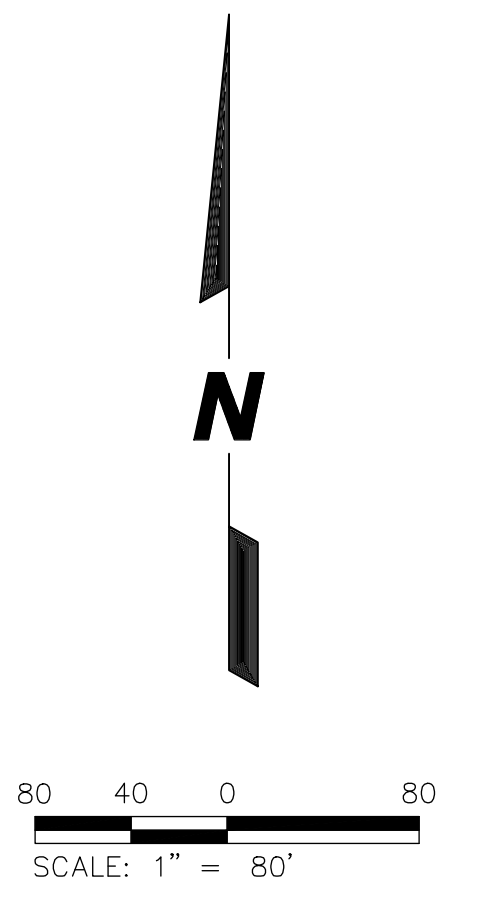
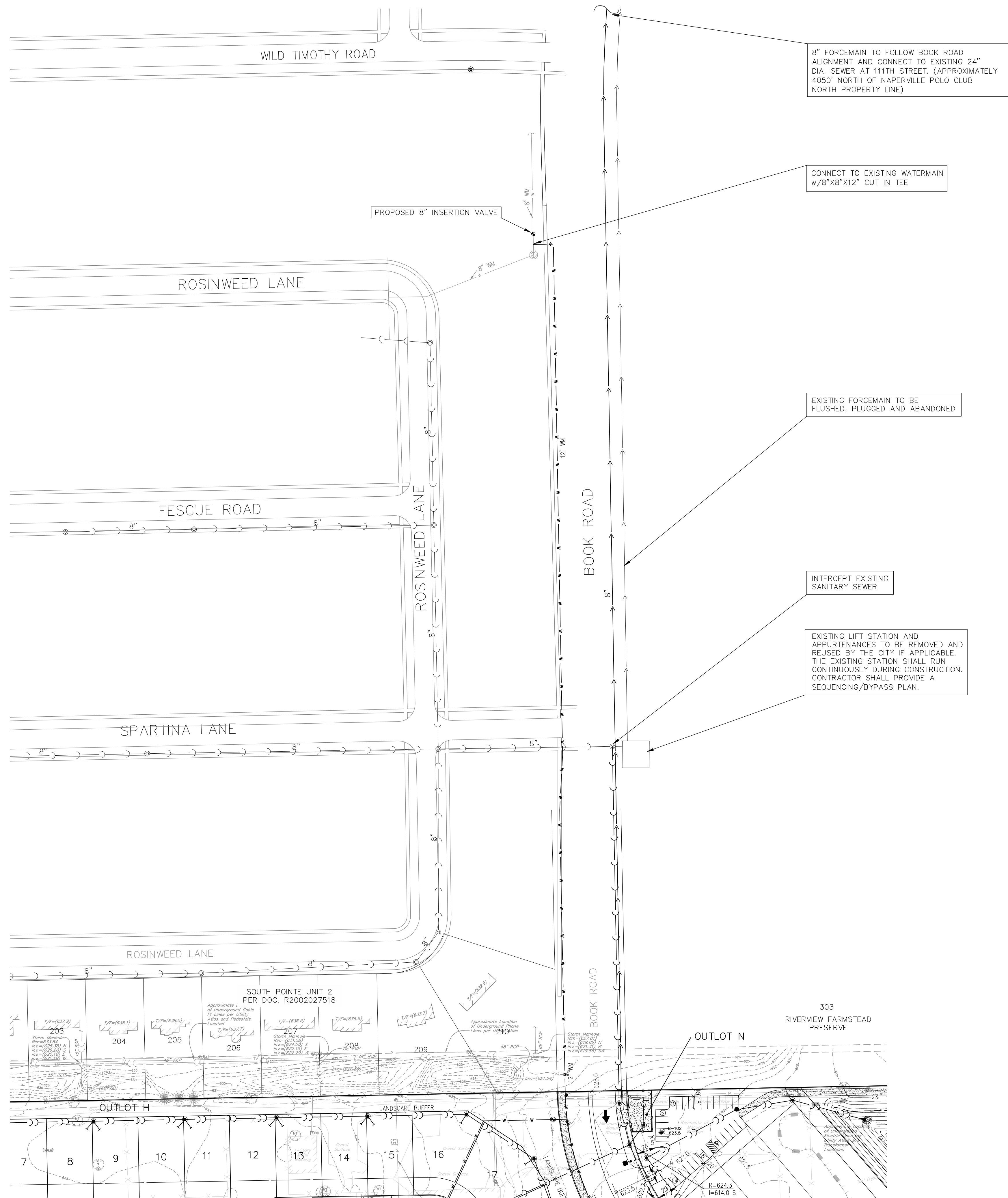
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**PULTE HOME COMPANY, LLC**  
 1900 E. GOLF ROAD, SUITE 300  
 Schaumburg, IL 60173  
 (847) 230-5400

PREPARED BY:  
**CEMCON, Ltd.**  
 Consulting Engineers, Land Surveyors & Planners  
 2280 White Oak Circle, Suite 100  
 Aurora, Illinois 60502-9675  
 PH: 630.862.2100 FAX: 630.862.2199  
 E-Mail: info@cemcon.com Website: www.cemcon.com

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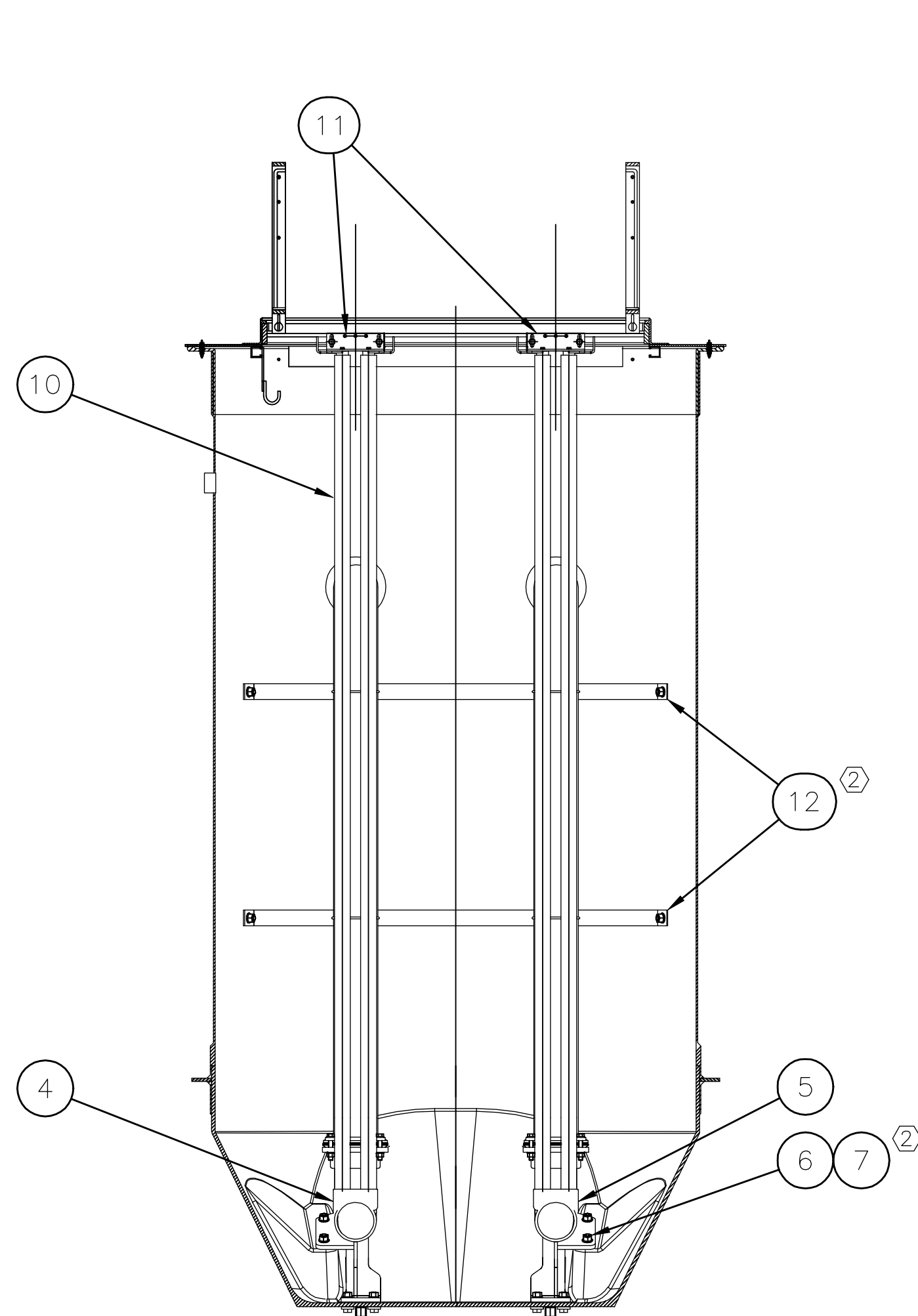
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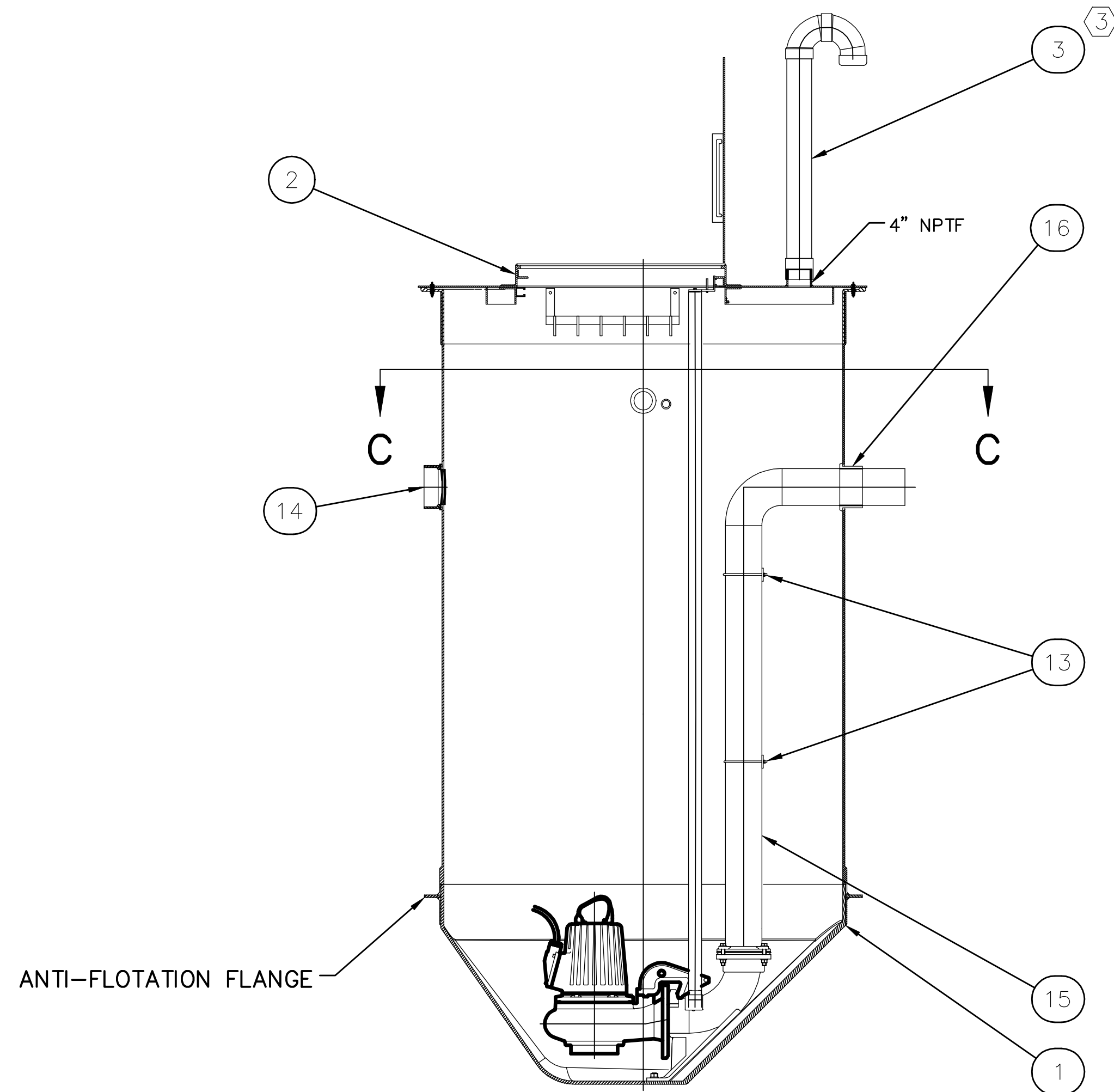
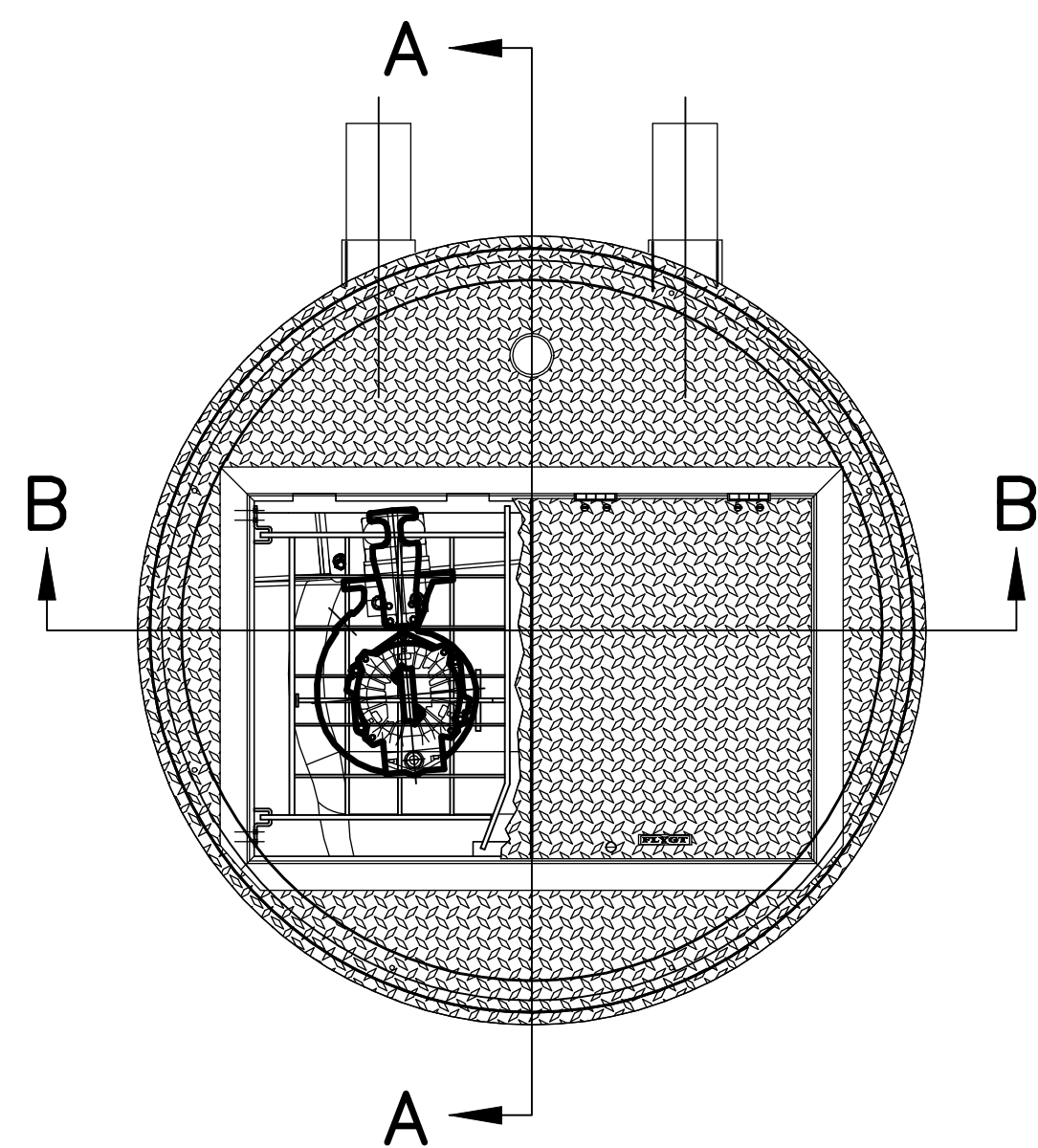
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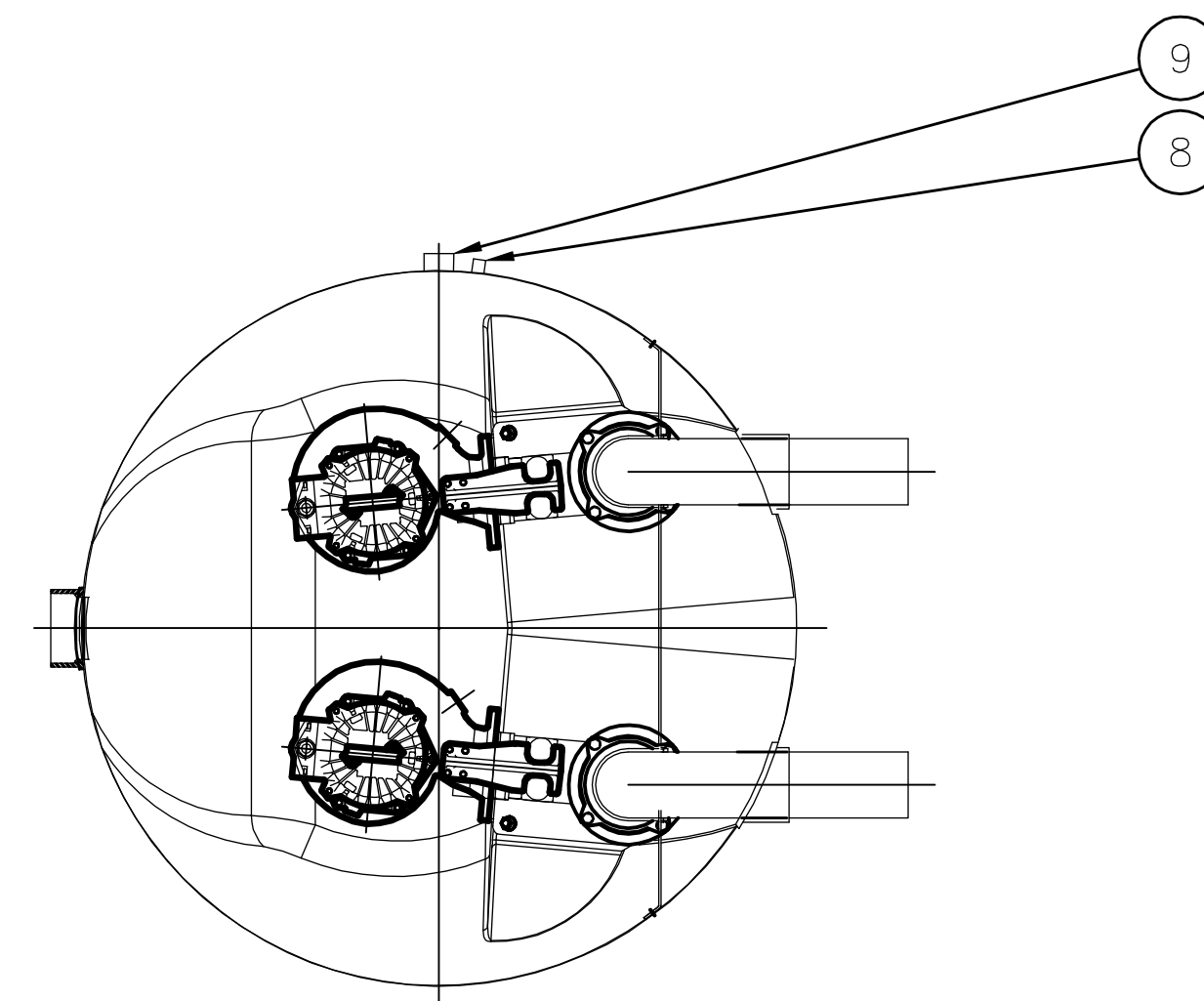
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VIEW B-B



VIEW A-A



VIEW C-C

**NOTES:**

1. STATION DEPTH: MIN 6ft., MAX 25ft. AVAILABLE IN 1ft. INCREMENTS.
2. ALL BOLT PENETRATIONS THRU WALLS MUST BE SEALED WITH SILICONE SEALANT.
3. OPTIONAL PVC CANDY CANE STYLE VENT SHOWN. MUSHROOM STYLE VENT ALSO AVAILABLE.

The following features will be added with Final Design:

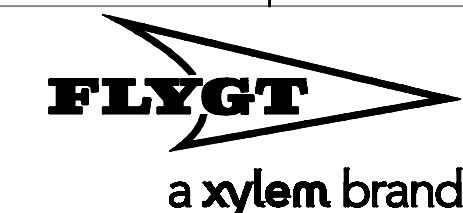
- Mixer and Mixer VFD.
- VFDs for pumps.
- Radar water sensor and water level transducers.
- Well hatch intrusion alarms.
- Flow meter & Pressure gauge.
- Pump power monitors.
- Backup generator which is operated by natural gas.
- Ventilation needs to be provided in dry well.
- Traffic box to include all controls and power equipment.
- Radar water level measurement
- Lift chain
- Water level transducer
- Bypass connection in dry well.
- Electrical vented junction box.
- Security fence around the station

All above equipment need to integrate in City SCADA. City SCADA integrater is Advanced Automation Control (AAC).

ITEM	DESCRIPTION	PART NUMBER	QTY
16	PIPING KIT		1
15	PIPE, 6" SCH. 10, 316 STAINLESS STEEL		1 ft (4x)
14	HUB		1
13	U-BOLT 3/8-11 OD 6-3/4 6" PIPE	29605T13	4
12	BRACING, DISCHARGE PIPE		2
11	UPPER GUIDE BAR KIT, 2"		2
10	GUIDE BAR, 2", 316 SST		4
9	SEAL, CABLE WALL, PUMP		1
8	SEAL, CABLE WALL, LEVEL SENSOR	1860SCF125P	1
7	WASHER, 1/2 ID, 1 1/2 OD, GENERAL PURPOSE, 316 SST	91950A036	8
6	NUT, 3/4-10, 316 SST	94805A135	8
5	DISCHARGE CONNECTION, RIGHT, 6"	620 03 10	1
4	DISCHARGE CONNECTION, LEFT, 6"	620 04 10	1
3	VENT PIPE, 4" (OPTIONAL)	14-68 22 02	1
2	COVER, 6'		1
1	BASIN/CYLINDER ASSEMBLY, 6'		1

UNLESS OTHERWISE NOTED:  
MACHINE TOLERANCE ON:  
WHOLE AND FRACTIONS ± 1/32  
1 PLACE DEC. ± 0.1  
2 PLACE DEC. ± 0.02  
3 PLACE DEC. ± 0.005  
ANGLES ± 0.15°

FABRICATION TOLERANCE ON:  
UP TO 12" ± 1/32  
OVER 12" TO 48" ± 1/16  
OVER 48" TO 120" ± 1/8  
OVER 120" ± 3/16  
ANGLES ± 0.5°



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DRAWN	DATE	BY	
10/1/09		GAV	
CHKR.	DATE	BY	
PROJ. ENGR.	DATE	BY	
APVD.	DATE	BY	

**TOP 6 PRE-FAB, 6" SST/PVC WITHOUT VALVES**

REF. 14-682454- NUMBER REV.

SCALE PLOT TO FIT

SHEET 1 OF 1

NO.	REVISION	BY	DATE	APVD.	DATE

CAD DRAWING (D)

DRAWING PATH: P:\402151\DWG\CAD\DRAWINGS\PRELIMINARY\PRE LIFT STATION DETS01-DWG

PREPARED FOR:  
PULTE HOME COMPANY, LLC  
1900 E. GOLF ROAD, SUITE 300  
SCHAUMBURG, IL 60173  
(847) 230-5400

PREPARED BY:  
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2280 White Oak Circle, Suite 100  
Aurora, Illinois 60502-9675  
PH: 630.862.2100 FAX: 630.862.2199  
E-Mail: info@cemcon.com Website: www.cemcon.com

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### Design Pumping Flow Rate

Peaking Factor Calculation	
Service Area Population =	1,800
Peak Factor =	$18 + \sqrt{P}$
	$4 + \sqrt{P}$
Calculated Peak Factor =	3.6
Design Peak Factor =	3.6

Determine Minimum Pump Rate	
Average Daily Flow =	180,000 GPD
Peak Flow =	651,765 GPD
Minimum Pumping Rate Required =	453 GPM
Design Pumping Rate =	500 GPM

### Cycle Time & Wet Well Geometry

Target Cycles Per Hour	
ADF =	125 gpm
Pumping Rate =	500 gpm
Time =	6.0 min.
Cycles Per Hour =	10.0
Check Cycles Per Hour:	OK
Check Cycles Per Hour:	OK

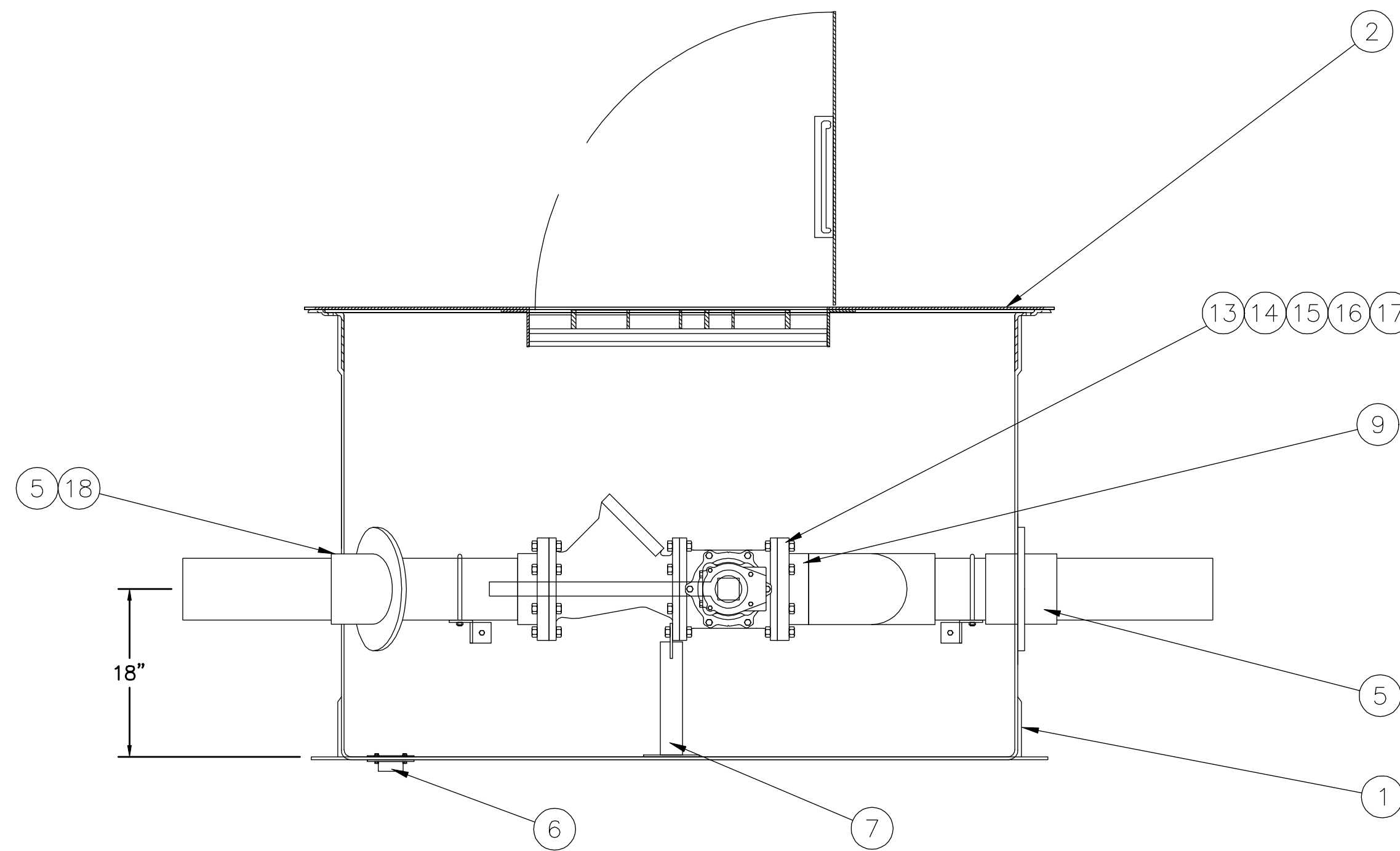
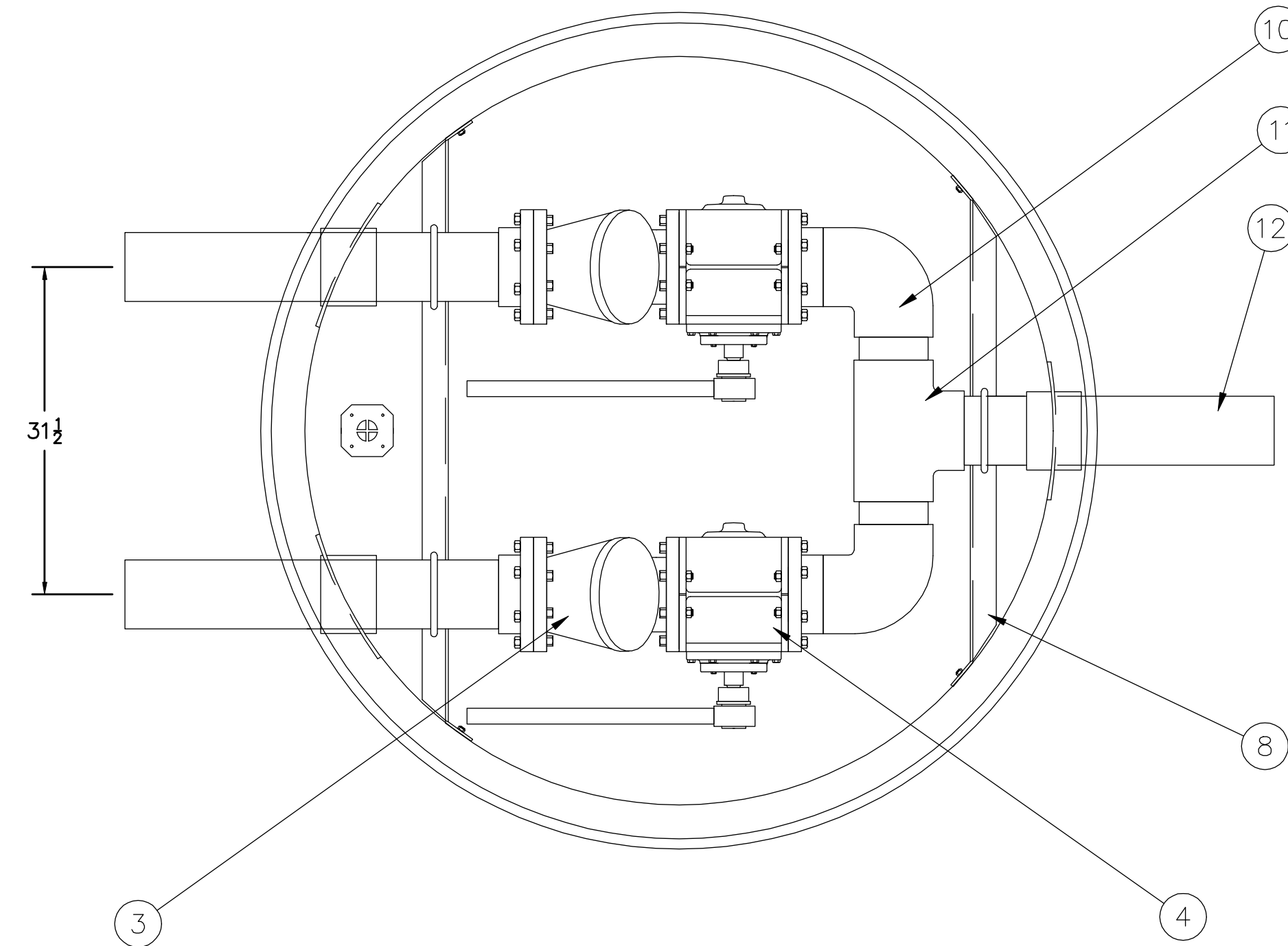
Determine Wet Well Diameter	
Required Volume =	563 Gallons
Pick Wet Well Diameter =	6.0 Ft
Pick Wet Well Cycle =	6.0 Vert. Ft
Volume in Cycle =	1269 Gallons

Vertical Datum Used: \_\_\_\_\_

### Determine Wet Well Invert & Float Elevations

Wet well Dia. =	6.0 Ft
Top Elev. =	624.00
Grd Elev. =	623.50
SS Invert In =	613.50
Alarm =	613.50
Lag On =	612.50
Lead On =	611.50
Pumps Off =	605.50
Bottom Invert Elev* =	604.00

\*As required for complete submergence  
Min. 2' Alarm to SS Invert In



### Force Main & Piping Design

Off-Site Force Main Data	
Design Pump Rate (gpm) =	500
Select Force Main Size (in) =	8
Velocity (fps) =	3.19
Meets Minimum Velocity Requirement?	OK
Meets Maximum Velocity Requirement?	OK
Required Pump?	Use Non-Clog Pump
Line Length (ft) =	4,050
Account for Minor Losses =	5%
Equiv Length (ft) =	4,253

Connection Point: 24" Gravity Line @ 111th St

Pump Station Piping Data	
Design Pump Rate (gpm) =	500
Pick Wet Well & Valve Vault Piping Size (in) =	6
Velocity (fps) =	5.67
Meets Minimum Velocity Requirement?	OK > 2 FPS
Meets Maximum Velocity Requirement?	OK < 8 FPS

Item	Number of Fittings	L/D Ratio	Equivalent Length
45 bend	0	16	0.00
90 bend	3	30	45.00
22.5 bend	0	9	0.00
Branch Tee Flow	1	60	30.00
Check valve	1	135	67.50
Plug Valve	1	17	8.50
			0.00
			0.00
			0.00
Equivalent Fitting Length (ft) =			151
Wet Well & Valve Vault Piping Length (ft) =			30
Total Equivalent Pump Station Pipe Length (ft) =			181
Equivalent Off-Site Diameter Length (ft) =			734
<b>Total Equivalent Force Main Length (ft) =</b>			<b>4966</b>

### NOTES:

1. VAULT DEPTH AS ORDERED.
2. DISCHARGE C/L MUST BE AT LEAST 18" FROM BOTTOM OF VAULT.
3. DISCHARGE C/L OF VAULT MUST EQUAL DISCHARGE C/L OF ORDERED STATION UNLESS OTHERWISE SPECIFIED.
4. INLET AND OUTLET PIPES SHALL PROTRUDE 12" OUTSIDE BASIN.
5. PIPING BETWEEN VALVE VAULT DRAIN AND STATION SUPPLIED BY OTHERS.
6. TWO DRESSER COUPLINGS, STYLE 38, WILL BE PROVIDED WITH VALVE VAULT FOR CONNECTION WITH STATION.
7. OPTIONAL ALUMINUM COVER W/O SAFE HATCH OPTION IS AVAILABLE UPON REQUEST. PLEASE SPECIFY WHEN ORDER IS PLACED.

### Pump Selection

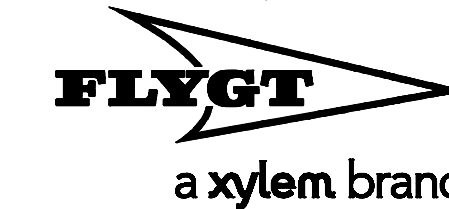
Force Main Diameter (in) = 8  
Equivalent Force Main Length (ft) = 4966  
Hazen-Williams C Factor = 100  
Minimum Required Pump Rate (GPM) = 453  
Design Pumping Rate (GPM) = 500

GPM	Pressure Head at Connection "All Out" (feet)	Pressure Head at Connection "Only Proposed Pump Station Out" (feet)	Static Head (feet)	"All Out" TDH (feet)	Proposed Pump Station "On" TDH (feet)	Velocity (fps)	Pump Head (feet)
100	0	0	21.37	21	23	0.6	104
200	0	0	21.37	20	20	1.3	95
300	0	0	21.37	17	17	1.9	87
400	0	0	21.37	14	14	2.6	79
500	0	0	21.37	11	11	3.2	69
600	0	0	21.37	8	8	3.8	62
700	0	0	21.37	6	6	4.5	54

Pump Manufacturer: Flygt  
Model Number: SP 3153 HT 63-464  
Impeller Diameter: 253 mm  
Horsepower: 15  
Voltage: 460v 3phase

ITEM	DESCRIPTION	PART NUMBER	QTY
18	6" LINK SEAL		3
17	3/4 18-8 SS WASHER		96
16	3/4 18-8 SS SPLIT WASHER		48
15	3/4 -10 18-8 SS NUT		48
14	3/4 -10 18-8 SS HHCS, LENGTHS AS RQD.		48
13	6" FLANGE GASKET		6
12	6" SCH80 PVC PIPE CUT TO LENGTH		7
11	6" SCH80 PVC TEE		1
10	6" SCH80 PVC EL		2
9	6" SCH80 PVC VAN STONE FLANGE		4
8	PIPE SUPPORT BRACKET		2
7	FLANGE MOUNTED PIPE SUPPORT		2
6	2" NPT DRAIN, HARDWARE		1
5	6" ALUMINUM HUB		3
4	6" PLUG VALVE, HANDLE		2
3	6" HDL CHECK VALVE		2
2	ALUMINUM SAFE HATCH COVER		1
1	72" DIA. FILAMENT WOUND BASIN W/ANTIFLOAT		1

UNLESS OTHERWISE NOTED:  
MACHINE TOLERANCE ON:  
WHOLE AND FRACTIONS ± 1/32  
1 PLACE DEC. ± 0.1  
2 PLACE DEC. ± 0.02  
3 PLACE DEC. ± 0.005  
ANGLES ± 0.15°  
FABRICATION TOLERANCE ON:  
UP TO 12" ± 1/32  
OVER 12" TO 48" ± 1/16  
OVER 48" TO 120" ± 1/8  
OVER 120" ± 3/16  
ANGLES ± 0.5°



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6' VALVE VAULT  
6" VAULT DIAMETER  
W/ 6" PVC PIPING  
REF. 14-682486 NUMBER REV.  
SCALE PLOT TO FIT

SHEET 1 OF 1

NO.	REVISION	BY	DATE	APVD.	DATE	APVD.	DATE	APVD.	DATE

CAD DRAWING (D)

PREPARED BY:



**CEMCON, Ltd.**

Consulting Engineers, Land Surveyors & Planners  
2280 White Oak Circle, Suite 100  
Aurora, Illinois 60502-9675  
PH: 630.862.2100 FAX: 630.862.2199  
E-Mail: info@cemcon.com Website: www.cemcon.com

PREPARED FOR:  
PULTE HOME COMPANY, LLC  
1900 E. GOLF ROAD, SUITE 300  
SCHAUMBURG, IL 60173  
(847) 230-5400

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