

PROJECT SUBMITTAL CHECK LIST

Project Name: _____

Project Address/Tax Map #: _____

Developer: _____

Engineer of Record: _____

Phone: _____ Fax: _____ E-mail: _____

All of the items indicated on this check list are accurately reflected in the attached calculations, Plans and Specifications.

Engineer of Record Signature: _____ Date: _____

Submittal # (Circle): 1 2 3 4 5

ACCEPTED By DPU: YES NO

This Check List shall be completed and submitted by the Development Plan Preparer and shall accompany all submittals to the City of Suffolk Department of Planning. Any item response indicating "NO" shall be explained in writing and attached to this Check List. Failure to fill out this Check List in its entirety may result in the submittal being rejected. Acceptance of this submittal is for review only and does not constitute a submittal acceptance.

I. Design Calculations

		Yes	No	N/A
1.	Plan Review Fees have been paid. Receipt attached.			
2.	A preliminary design conference has been held with DPU.			
3.	An engineering report is provided and covers all phases and aspects of the project in accordance with Chapter 3 – Design, of this PFM.			
4.	Applicable calculations are provided (signed and sealed by Engineer of Record).			
5.	Water: Average day, maximum day, and fire flows, headloss calculations, hydraulic modeling.			
6.	Sanitary: Average and peak daily flows, calculated pipe sizes, flow calculations, and Consent Decree/RTS Note.			

		Yes	No	N/A
7.	Pump Stations: Interim and full build-out, pump and system curve, pump cycle time, wetwell capacity, NPSH calculations, generator sizing calcs (as applicable) overflow calculations, buoyancy, design loads (soil borings included), structural calculations and force main velocities.			

II. Design Drawings

1.	Project Name, Developer's, Engineer of Record's and Surveyor's (if applicable) name and contact information.			
2.	Vicinity map with north arrow.			
3.	Plans signed, sealed, and dated.			
4.	Plans clearly depict all existing and proposed features including Existing contours and proposed contours with major contours labeled and source of topographic survey.			
5.	Easements shown and labeled with callouts and dimensions.			
6.	North Arrow and scale (plan and profile) provided on all applicable sheets with baseline stationing for cross referencing.			
7.	Standard general notes for water distribution and sanitary sewer systems.			
8.	Vertical and horizontal datum shown and benchmarks established if necessary.			
9.	Provide call-outs: Individual or tabular for all features referencing details.			
10.	Profiles provided for water and sanitary along with stub-outs for future connections showing minimum cover.			
11.	Clearly labeled pipe sizes, types, requirements, inverts, slopes, and any other applicable design information.			
12.	Proper horizontal and vertical separation from other utilities.			
13.	Overall plan which shows water and/or sewer layout including existing and proposed utilities, buildings, vaults, features, streets, property lines, pins, easements, property parcels labeled with Tax Map # and Owner, methods of construction, wetlands or resource protection areas, etc. with a sheet index. Project phasing shall be indicated if applicable.			
14.	Standard details shown including trenching, bedding, backfill, compaction, erosion control, etc.			
15.	Backflow prevention has been addressed.			
16.	Revision Block provided on each plan sheet and is up-to-date.			

PLAN REVIEW CHECK LIST

Project Name: _____

Planning Number: _____ **DPU File Number:** _____

Project Location: _____

Tax Map/Parcel: _____

Planning Staff Contact: _____ **Project Type:** _____

Developer: _____

Engineer of Record: _____

Phone: _____ Fax: _____ E-mail: _____

DPU Plan Reviewer Name: _____ Review Date: _____

DPU File #: _____ Submittal # (Circle): 1 2 3 4 5

The Engineer of Record for the Project shall fill out and include this Check List, along with the Submittal Check List with each submittal. The intent of this Check List is to aid in providing complete project documents that are in accordance with the requirements of the City of Suffolk Department of Public Utilities (Department) Public Facilities Manual (PFM), Volume 2. Submittal of this Check List does not relieve the Engineer of Record of the responsibility for conformance with any Local, State or Federal requirements. The Department's review of the design calculations and construction plans is strictly for conformance and general arrangement. By its approval, the Department does not certify as to the correctness or completeness of said plans and specifications. The Department takes no professional responsibility or liability for the calculations or plans. It is the responsibility of the Engineer of Record, not the Department, to ensure the calculations and plans comply with all governing regulations, standards and specifications. Contractor shall be responsible for all associated Engineering review costs.

Engineer of Record Signature/Date

I. ENGINEERING REPORT / CALCULATIONS

		Yes	No	N/A	Notes/Comments
<u>PRELIMINARY ENGINEERING REPORT</u>					
1.	Calculations and plans are sealed and signed by a Virginia Registered Professional Engineer.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.	Provide a timeline indicating approximate build-out of the Service Area.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.	Provide a service area map and include off-site service areas. Map must be to scale.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.	Provide a written narrative that explains the engineering features of the Project. Include a Table of Contents and number all pages.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.	Include a table of wastewater flows by Service Area segment to include preliminary, interim and final flows (as applicable). Include full build-out of Service Area.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.	Provide thrust restraint calculations for all force main and water mains.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.	Provide wetland and other environmental impacts in report.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.	Include Piping and other requirements as stated in water and sewer sections.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.	Provide Plat(s) to DPU for review and approval prior to recordation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<u>WATER SYSTEM</u>					
1.	Include Average Day, Maximum Day, Maximum Hour and Fire Flows for all areas and sub-areas of the proposed service area.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.	Provide complete hydraulic modeling information with all design assumptions clearly indicated. Provide a hydraulic node map identifying all nodes and pipe segments corresponding with the water model demands and calculations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.	Include headloss calculations using C=120 for cement lined ductile iron pipe and C=130 for PVC and HDPE pipe.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.	Modeling results show a minimum of 20 psi and a maximum of 80 psi at design flow within the service area.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.	Verify Fire Flow site calculations have been provided in accordance with the current City of Suffolk requirements. Both Required Fire Flow and Available Fire Flow are	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

		Yes	No	N/A	Notes/Comments
	clearly stated and discussed. Verify that Code references are provided and hydrant spacing is in accordance with NFPA and the City of Suffolk Fire Department.				
6.	A City of Suffolk hydraulic model run (recent-less than 1-year old) has been performed and a copy is included.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.	Provide water service sizes and meter sizes with backup calculations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.	A table is included showing the following information for each pipe: size, material, project pressure, flow and velocity. (Include C Factor) Identify limits for design velocities in the pipe segments.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
GRAVITY SEWER/FORCE MAIN SYSTEM					
1.	Average Daily Flow(s) and Peak Flow(s) are presented in tabulated form.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.	Peak flow and average flow are calculated in accordance with the Consent Decree/RTS including initial and build-out conditions and any offsite areas presented in tabulated form.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.	Include a table reflecting all pipe slopes, manhole and cleanout rim and inverts. Table identifies connections of pipes to manholes and describes where the manholes can be located on the plans.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.	Identify in report where DI pipe will be required. (i.e. less than 3' of cover or greater than 12' in depth).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.	Where gravity sewer lines are located under large storm drain structures (>18") with less than 12" vertical clearance, the gravity sewer line must be replaced with ductile iron pipe from manhole to manhole or the entire lateral length and special bedding material is required. Where large storm drains are placed over existing PVC gravity sewer lines with less than 12" clearance, a storm drain bridge must be installed to prevent future settlement. Identify these areas in report.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.	Pipe scouring velocities should be maintained between 2-8 ft/sec during average daily and peak flows. Provide calculations to verify velocities can be achieved with selected pipe sizes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.	Provide calculations showing Commercial, Industrial or other flow figures with source references (VDEQ, Consent Decree/RTS, etc.).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

		Yes	No	N/A	Notes/Comments
8.	Include flow calculations using “n” = 0.013 for cement lined ductile iron pipe and “n” = 0.011 for PVC and HDPE pipe.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.	Calculations indicate pipes sized so that maximum depth of flow in any pipe, at Ultimate Flow, does not exceed 2/3 full.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10.	Minimum pipe slopes are in accordance with PFM.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11.	Minimum fall across Manholes is 0.1 feet. If this requirement is not met, a letter requesting an exemption, including reasons, is included.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.	Where multiple dwellings connect to one common City lateral, provide calculations to support that the lateral has adequate capacity to handle the peak demand flows from all connected units.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13.	Drop connections to manholes should be avoided. If a drop connection is required, a letter requesting exemption, including reasons, is included.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14.	Where manholes are located in a depressed drainage area, waterproof manholes with inserts must be installed. Identify these areas in report and provide alternatives to prevent rainwater inflow.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<u>Sanitary Pump Station</u>					
1.	Identify that Project flows discharge by gravity sewer into a new pump station to be constructed with this Project or that Project flows discharge by gravity into an existing pump station. Existing pump station and force main capacity analysis is included.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.	Identify that Wet well/dry well pump station with brick building, emergency pump connection, emergency generator and all-weather driveway will be provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.	Submersible pump station with brick building, emergency pump connection, emergency generator and all-weather driveway will be provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.	Minimum lot size conforms to PFM, unless otherwise approved by the DPU.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.	Verify that Lot is adjacent to a City maintained right-of-way or an Ingress/Egress easement has been provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.	Verify that Pump station has been located to take advantage of topography so as to maximize service area of proposed system (serves a minimum 3,000 foot radius.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

		Yes	No	N/A	Notes/Comments
8.	Provide Soil borings Geotechnical Report with foundation recommendations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.	Provide design loads used in calculations (Dead and live loads for floor and roof, snow, wind, stairs, railings, crane).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10.	Provide Buoyancy calculations for wet well and vaults.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11.	If Pump station discharges into an existing gravity sewer system, provide Existing gravity sewer system capacity calculations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.	Provide HRSD Flow Certificate Request with submittal.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13.	Calculate Initial and Build-Out flows for Service Area based on the Consent Decree/RTS.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14.	Provide Pump Cycle Time (generally 15 minutes) calculations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15.	Operating range set at 1.0 foot minimum.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16.	Low Water Level set to Pump Manufacturer's minimum recommendation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
17.	High Water Level set to prevent sewage from backing up in gravity sewer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
18.	High Water Alarm elevation set at minimum of 6-inches above Lag Pump On elevation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
19.	Provide system storage calculations for minimum holding time prior to overflow.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
20.	Total Dynamic Head (TDH) calculations are provided in tabular format for max and min conditions for each of the specified present and future conditions, including any potential future impeller modifications. Calculations also include: Headloss calculations using C=120 for cement lines ductile iron pipe and C=130 for PVC and HDPE pipe, static head calculations, station discharge pipe head calculations, station suction pipe head calculations including minor and entrance losses, and designed to HRSD entrance head requirements including policy head, peak daily head, zero HRSD pressure head (if discharging into HRSD force main)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
21.	Provide Force Main sizing calculations include velocity figures for max and min pumping. Minimum velocity is 2 feet per second and maximum is 8 feet per second.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
22.	Pumps must be able to pass 3-inch sphere.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

		Yes	No	N/A	Notes/Comments
23.	Verify that Motors have sufficient horsepower to meet the maximum power requirements and are non-overloading throughout the entire pump impeller curve for any size impeller specified for present and future conditions. Provide calculations for impeller change out during project phasing for constant speed pumps.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
24.	Provide NPSH _R (Net Positive Suction Head, Required) determined.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
25.	Provide NPSH _A (Net Positive Suction Head, Available) calculated and compared with the NPSH _R . (Available must exceed Required by a minimum of 1 foot.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
26.	If VFD's are specified, then range of speed settings are provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
27.	Provide Heater and ventilation requirements with calculations showing a minimum of 12 complete air changes per hour if continuous or 30 air changes per hour if not continuous.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
28.	Generator sizing calculations are provided. Size for one pump starting (inrush) while one pump and all other station loads are online.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

II. PLANS –GENERAL, DETAILS & NOTES

<u>GENERAL</u>					
1.	Minimum 10 foot horizontal separation is maintained between water mains, water services and meters and sanitary sewer lines and laterals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.	Provide Minimum 18 inch vertical clearance maintained between water mains and sanitary sewers. Minimum of 8 foot spacing between water mains joints and sanitary sewers (note on the drawings).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.	Backflow prevention considered. If backflow prevention installed, complies with City of Suffolk Cross-Connection Manual.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<u>DRAWING ORGANIZATION AND FORMAT</u>					
1.	COVER SHEET Shall contain the following:				
2.	Project Name on Cover Sheet.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.	Developer's/Applicant's name, contact person(s), street address, phone number and fax number.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

		Yes	No	N/A	Notes/Comments
4.	Engineer's and Surveyor's (if applicable) contact person(s), street address, phone number and fax number.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.	Original P.E. seal signed and dated by the Professional Engineer of Record, registered in the Commonwealth of Virginia with seal date reflecting the submittal date.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.	Miss Utility verbiage, including phone number (811).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.	100-Year Flood Elevation shown on Cover sheet.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.	Table of Quantities for Water and Sewer (including breakdown of pipe material and lengths).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.	Source of the topographical survey is included.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<u>GENERAL DRAWING SHALL BE / CONTAIN:</u>					
1.	Submitted sheets shall be no larger than 24"x 36".	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.	Sheet Index and Vicinity Map with north arrow.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.	Vertical and horizontal datum used on the project.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.	Plans contain an overall plan scaled no less than 1-inch = 600-feet and show all proposed utilities which tie to existing utilities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.	Plans clearly depict all existing and proposed site features including existing and proposed contours shown with major contours labeled. Maximum contour spacing 1-foot.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.	Plans contain an overall plan of the water and/or sewer layout. The overall plan shows the sheet orientation and includes a sheet index.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.	North Arrow shown on each sheet.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.	Standard symbols with symbol key are included on the Cover Sheet.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.	All plans submitted for review comply with the format and quality control requirements of DPU Standards.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10.	Profiles developed at a minimum scale of 1"=40' horizontal and 1"= 4' vertical (i.e.-H/V=10).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11.	A bar scale is included on each sheet. On Plan and Profile Sheets, horizontal and vertical bar scales included.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.	All known existing structures and known utilities (above and below ground) are shown on plan and profile.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13.	All buildings, vaults and features labeled.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

		Yes	No	N/A	Notes/Comments
14.	Inserts of detailed utility connections in 1"=20' or larger scale where specific information can not be depicted on plan sheets.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15.	Street names, both existing and proposed are clearly labeled along with lot and tax map parcel numbers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16.	Temporary Benchmarks are located every 500 feet along water lines and gravity sewers, and force mains.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
17.	Benchmark established and identified on the plans if project site is greater than 2500 l.f. from an existing and established benchmark.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
18.	If a horizontal bore is planned, location of jacking and receiving pit and casing air vent shown in both plan and profile views.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
19.	Details of how utilities will be protected if existing utilities are shown within the limits of the pit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
20.	At jack and bore crossings, steel casing requirements are shown on the plans.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
21.	Drawings show easements required and identify Deed Book and Page Number	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
22.	All plan sheets sealed, signed and dated by a Professional Engineer registered in the Commonwealth of Virginia.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
23.	Plans contain a Legend which correctly reflects existing and proposed features shown on the plans.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
24.	All existing and proposed property lines, pins easements, setback limits properly shown, labeled and dimensions and, where applicable, recordation referenced.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
25.	Any affected wetlands or Resource Protection Areas (RPA) are properly shown and labeled.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
26.	Plan and profile drawn in the same direction. Whenever possible, stations ascend from left to right.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
27.	Provide baseline stationing for all proposed fittings and structures.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
28.	Baseline Stationing in 100 foot increments provided on plan and profile for cross referencing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
29.	Existing and proposed final grades shown on profile along the centerline of the proposed water and sewer lines.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
30.	Show limits of pavement replacement for water and sewer installation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
31.	Landscaping is not located within PU easements or City right of way. Drip lines of trees do not encroach upon PU easements or right of ways.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

		Yes	No	N/A	Notes/Comments
32.	Sewer and water lines not to be owned by the city identified as "Private".	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
33.	Call out all easements for water and sewer by width and identify as "Public Utility Easements".	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
GENERAL NOTES SHALL INCLUDE:					
1.	Construction, Water and Sewer notes (as a minimum, the City of Suffolk DPU Standards and Details are referenced).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.	Note that all private and public materials and methods of construction shall conform to the current edition of the City of Suffolk Public Facilities Manual Volume II.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.	Standard verbiage about as-built drawing requirement and easements.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.	Engineer to verify inverts of all existing manholes, gas lines, water lines and other utilities prior to the start of construction. Provide test pits at critical utility areas or where reliable record information is unavailable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
GENERAL DETAILS SHALL INCLUDE:					
1.	All applicable PFM details are included.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.	Detail drawings of trenching, bedding, backfill and compaction requirements are shown.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.	Erosion control requirements and details are shown.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.	For utility work which affects a large number of customers or has a significant impact on the normal operation of the system, a detailed sequence of construction limiting the impact on the system is included.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

III. WATER SYSTEM

<u>PLANS - WATER SYSTEM PLAN & PROFILE</u>					
1.	Pipe shall be labeled with size, pipe material and class.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.	Dimensions are shown to locate water mains from R/W, easements, buildings, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.	Fire detector check and vault requirements are shown on plans.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

		Yes	No	N/A	Notes/Comments
4.	Provide Call outs for horizontal bends, vertical bends, fittings, valves, fire hydrants and other appurtenances, with Stations and northings and eastings, on plans.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.	Ditch lines are shown on plans, if applicable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.	Required restrained joint lengths along water mains on the drawings in accordance with provided calculations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.	Locations of all utilities that cross the area of the proposed water line are shown on the drawings.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.	Water meter sizes noted on plans.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.	Irrigation meter sizes and locations are noted on plans. RPZ notes are indicated on plans.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
WATER SYSTEM DESIGN					
1.	Water mains are located 5 foot from face of curb or 2 foot from edge of pavement where there are ditches.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.	Water service lines provided to each lot. Service lines placed 10 foot on either side of lot property line.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.	Water mains larger than 6 -inches with less than 3 feet or greater than 12 feet of cover are D.I. pipe.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.	Minimum ground cover over all pipes meets minimum criteria (20" and smaller = 36", 24" and larger = 42").	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.	Minimum water main size is 6 inches in diameter for residential areas and 8 inches in diameter for multi-family, commercial, and industrial areas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.	All water mains are looped and there are no dead-ends. If dead-ends are present, an exception has been requested.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.	A hydrant or blow-off valve is provided at dead-ends.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.	Fire hydrant spacing has been coordinated with City of Suffolk Fire Department.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.	A minimum of 12" separation is provided between proposed water mains and storm drain lines when water mains are located under storm drains.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10.	Valves installed at every pipe intersection. Minimum number of valves: Use N-1 Rule with N being the number of pipes entering a junction.. For tees, N-1 is 2 valves and crosses 3 valves. Valves are located no more than 3 feet from fitting.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11.	Water valve sizes – Up to 12", gate valves; over 12" butterfly valves.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

		Yes	No	N/A	Notes/Comments
12.	Isolation valves spaced at 1500 feet minimum, 2500 feet maximum.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13.	Air Release Assembly or fire hydrant indicated where high points in water line cannot be eliminated when approved by DPU. If fire hydrant or services are located at high points, then Air Release Assembly may not be required.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14.	Pipe profiles are drawn (as practical) to minimize high points in the pipeline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15.	Manual air release assembly or hydrants are placed at high points in the water main.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

IV. GRAVITY SANITARY SEWER SYSTEM

<u>PLANS - GRAVITY SYSTEM PLAN AND PROFILE</u>					
1.	Provide profiles for all gravity sewers (public and private), including stub-outs within five-feet of adjoining property or future extensions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.	Provide Manhole data (Station, inverts in(s), invert out, top elevation and manhole size and type) shown in plan and profile. Centerline coordinates of all manholes shown on plan.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.	Deflection angles or bearings of all sewers are shown on plans.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.	A note shall be provided for all drop connections referencing appropriate detail.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.	All existing manholes shall be labeled.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.	Detail Drawings of manholes: Standard, drop, doghouse, etc. are on the detail sheet.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.	All minimum finished floor and basement elevations shall be shown on plans, where applicable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.	Dimension shown to locate sewer lines from R/W, easements, buildings, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.	Show locations of all existing and proposed utilities that cross within the area of the proposed gravity sewer line.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10.	Table for the sewer system including ultimate owner of the sewerage project, average daily design flow (gpd), peak design flow (gpd), and name of the owner of the first downstream pump station that will receive flow from this project.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

		Yes	No	N/A	Notes/Comments
GRAVITY SYSTEM DESIGN					
1.	Pipe slopes are equal or greater than the requirements presented in the PFM.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.	Minimum sewer main size is 8 inches.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.	All pipe between manholes are to be of like size, material and class and are labeled with length, pipe type and class, pipe size and pipe slope.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.	Manholes located in roadways are on the centerline or ¼ points.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.	All sewer mains end with a manhole.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.	Manhole Spacing: 400 feet, max.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.	Minimum Manhole Diameter: less than 12 feet deep – 48” dia., Over 12 feet deep – 60” dia.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.	Manhole rims are above the 100-Year Flood Elevation. If not, require watertight manholes with inserts.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.	Commercial and industrial laterals are at least 6” diameter.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10.	Residential laterals are at least 4” diameter.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11.	Angle of sewer entry into manholes is at least 90° or greater to the downstream sewer pipe.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.	Sanitary sewer lateral provided to each lot. Laterals may be placed 10 foot on either side of lot centerline.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13.	Sewers with less than 3’ or greater than 12 feet of cover are D.I. pipe.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14.	Minimum depth to of all sewers = 3.0 feet unless otherwise approved by the City.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15.	Full joint pressure pipe used where minimum 18-inch vertical separation from water main cannot be achieved.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16.	Crowns of all sewers entering manholes are at crown’s level or higher as required.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
17.	Protective measures when minimum separation with other large structures (ie. storm drains, water lines) is not present.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

		Yes	No	N/A	Notes/Comments
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V. FORCE MAIN

<u>PLANS - FORCE MAIN PLAN AND PROFILE</u>					
1.	Plan indicates pipe diameter, material	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.	Stations shown for horizontal bends, vertical bends, fittings, valves, and other appurtenances.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.	Manual air vents indicated where high points in force main cannot be eliminated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.	Horizontal fittings called out in plan and profile. Vertical fittings only called out in profile.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.	Profile indicates type and class of pipe and type of joint.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.	Restrained joint lengths by pipe size and fitting type shall be included on the profile plans for PVC and DIP force main as applicable.				
<u>FORCE MAIN DESIGN</u>					
1.	Minimum diameter for Private Force Main is 2-inch.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.	If force main is located along stream, lake, impoundment - force main shall be at least 10 feet outside top of bank.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.	Stream and road crossings shall be as close to 90° as possible.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.	Isolation valve spacing: shall be minimum = 1500 feet, maximum = 2500 feet.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.	Valves in force mains are gate or plug valves.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.	Force main discharges into gravity sewer shall be no higher than 2 feet above invert, if applicable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.	Force main discharging into manhole detail, if applicable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.	Minimum cover over force main is 36-inches.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

VI. PLANS – PUMPING STATION

<u>Site Plan</u>					
1.	Dimensions shall be shown to locate Pump Station building from R/W, easements, buildings, etc. Provide Northing and Easting coordinates for each corner of the	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

		Yes	No	N/A	Notes/Comments
	building.				
2.	Show emergency bypass connection with respect to force main connection.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.	Site shall be graded to divert runoff away from pump building.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.	Set back limits shall be shown on plan.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.	Concrete driveway shall be provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.	All required landscaping shall be shown in accordance with the UDO.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.	Transformer locations shall be shown and maintain required clearances from DPU utilities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.	Provide Exterior/Security lighting calculations and illumination plan. Should be under Calculations Section.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.	At least one (1) Temporary Benchmark shall be provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10.	Sufficient space has been provided for staging, special erosion control facilities, spoil storage and waste storage.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11.	Provide Storm drain plan including culvert sizes and materials.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.	Test holes and soil boring locations are shown.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13.	Provide Domestic water line with meter and backflow preventer.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14.	Demolition Plan has been provided, if pertinent.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15.	Determine 100-Year Flood Elevation at site. Finished floor elevation to be above 100-Year Flood Elevation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16.	Plat provided to DPU for review and approval prior to recordation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<u>Architectural Shall include:</u>					
1.	Architectural Details – Wall Sections, Roof Section.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.	Architectural Details - Windows, Doors, Louvers, Sills, and Finish Details.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.	Architectural Schedules - Windows, Doors, Hardware, Paint, Louvers, and Sills.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.	Typical wall section for pump building, wet well and vaults. Section shows materials, reinforcing, insulation and trim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

		Yes	No	N/A	Notes/Comments
5.	Roof framing plan.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.	Minimum 42" railing height with three (3) rails, with 4" high toe guard.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.	Stair handrails and non-slip surfaces. Stair safety landings at 12 foot maximum intervals, if applicable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.	Stair sections are dimensioned and show all head/access clearances.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<u>Mechanical and Structural</u>					
1.	Station conforms to appropriate "Prototype Station".				
2.	Water stops in concrete walls, Expansion joints in masonry walls.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.	Wet well coating or lining specified on plans.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.	All miscellaneous metal in the wet well to be stainless steel or aluminum.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.	Vault drains into wetwell. P-trap is provided in wet well.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.	Check that all minimum clearances are provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.	Proper spacing between pumps and between pumps and walls has been provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.	Pump access doors are of adequate size for pump removal. Adequate pump removal equipment has been provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.	2 foot minimum between outside wall and first joint of pipe for both influent and effluent.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10.	Link-Seals are provided and noted to caulk both sides. Kor-N-Seal boots are not allowed at pumping stations..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11.	Personnel and truck access doors, if applicable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.	Floor drains or slope provided for wash water disposal.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13.	Indicate minimum pump submergence.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14.	Reinforcing clearances are shown.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15.	Dry well/valve pit ventilation to be "supply".	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<u>Station Piping Plan</u>					
1.	Provide Means of isolating entire pumping station.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.	Isolation gate valves for each pump. Check valve installed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

		Yes	No	N/A	Notes/Comments
	on discharge pipe. For submersible stations valves shall be in a separate pit outside the wet well.				
3.	Permanent emergency by-pass pump connection shall be provided. Quick-couplings are called out.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.	Sump and sump pump with automatic control (required for wet pit/dry pit stations).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.	Dehumidifier is located on a stainless steel wall bracket with bottom set 2 feet above pump room floor. Dehumidifier drains into sump.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.	Proper O.S.H.A. signage provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<u>Wet Well</u>					
1.	A minimum of two pumps are to be installed. Station must be able to pump Design flow with any single pump out of service.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.	Method of pump removal uses a permanently attached stainless steel cable or chain for submersible and an electric hoist for wet pit/dry pit. Adequate clearances have been provided to permit pump removal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.	Chain length provided is of adequate length to reach pump room floor.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<u>Electrical</u>					
1.	Connected Load Schedule is provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.	Electrical service is adequate.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.	Electrical equipment shall be located in the pump building. Electrical equipment meets NEC for Class 1, Group D, Division 1 locations and be suitable for corrosive conditions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.	For major pieces of equipment - horsepower ratings, phases and voltages match each other on different sheets.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.	Elapsed time meters provided for each pump. Pumps shall be alternating.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.	Lightning protection is provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.	Protection from voltage spikes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.	Variable Frequency Drives are shown, if applicable. Range of initial settings are indicated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.	Type of Emergency Generator Power is indicated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

		Yes	No	N/A	Notes/Comments
10.	Stand-by Generator. Supply fuel tank w/ 48-hour fuel supply.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11.	Generator supplied stations have sequencing controls to start pumps individually.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.	Telemetry meets DPU Standards.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13.	Proper ranges and units specified.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14.	Adequate visibility for gauges and readouts.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15.	Provide adequate expansion in transmitters and receivers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16.	Lighting levels are shown on the Plans.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
17.	Electrical floor plan matches mechanical and architectural floor plans (lighting, boards and panel locations).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
18.	Light switches and wall receptacles shown.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
19.	Conduit sizes shown and exposed/concealed noted.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
20.	Conduits in wet well are rigid steel PVC coated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
21.	Sufficient maintenance space provided around electrical panels.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
22.	Transfer Switch shown on electrical plan.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
23.	Emergency electrical connection.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
24.	Pump failure alarm on exterior of building.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
25.	No junction boxes or panels in wet well.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
26.	Lighting, Panel, and Heater Schedules.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
27.	Seal-offs called out.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
28.	Photocell control for exterior lighting.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
29.	Adequate spare circuits are provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
30.	Schedules for major pieces of equipment have electrical connections and horsepower ratings, phases and voltages that match other discipline schedules.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
31.	Control System by PFM Standard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
32.	Main Service Disconnect Switch is provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

