Town of Grafton

Wastewater Treatment Facility

PAUL F. COURNOYER

Superintendent of Sewers

9 Depot Street

South Grafton, MA 01560

Phone: (508) 839.8526 Fax: (508) 839.8523

cournoyerp@grafton-ma.gov

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NOV 15 2016

PLANNING BOARD
GRAFTON, MA

Memo

To: Planning Board

From: Paul Cournoyer

Date: 3 November 2016

Re: Village at Institute Road

The Sewer Dept Submits the following comments regarding the Village at Institute Road:

1. No pump station details were submitted with the plan. We have attached and also sent to the developer our pump station minimum requirements.
2. Sewer Manhole (SMH) 5 at the intersection of RT.30 and the cross country line has an invert depth of approx. 377'. We request that the developer confirm that the depth is adequate to allow future gravity sewer to be installed east on RT.30 to area of Anzios.
3. Lot 24 and lot 38 show house laterals entering SMHs these connections must be removed from the SMH.
4. Lot 46 has no sewer connection indicated.
5. Stubs must be provided to all lots or potential lots on Westboro Road.
6. Sewer Dept. standards call for a SMH to installed at every intersection. Is Parmenter Crossing considered a road and if yes a SMH must be installed in the area.

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Pump Stations

It is the policy of the Grafton Sewer Department to minimize the need for wastewater pumping stations and limit their construction and use within the system.

Pump stations may be allowed as part of the Town of Grafton wastewater collection system only where specifically authorized by the Town of Grafton Board of Sewer Commissioners or their representative. The Town of Grafton will prohibit the installation of pumping stations where in its opinion such installations would be injurious to the operation or future operation of the collection system.

Sewer pump stations are long term high maintenance items requiring daily inspections and significant resources to operate. Pump stations cause a disproportionate expense in order to provide service to a limited customer base and that the failure of a pump station poses significant environmental concerns and health risks.

It is recognized however that there are situations where pump stations are unavoidable. In this case a detailed engineering report documenting reasons for proposing a pump station shall be submitted for review. This report shall establish that there are no reasonable alternatives available. The report shall also include information regarding flows from adjacent unsewered areas in the proposed tributary area. The report should also detail that construction of a proposed pump station would facilitate progress toward current officially approved planning documents. The report must also demonstrate that the pump station is at an appropriate location and has the capacity to serve as a permanent long term facility. No pump station will be considered without this report.

A fee of $30,000.00 per pump station will be paid to the Town of Grafton before a pump station will be accepted for use. This fee is to cover the operation and maintenance of the station for three (3) years.

All proposed pump stations shall be considered as a special feature and dealt with on an individual basis.

This policy shall go into effect July 1, 2013. Pump stations which have been previously approved and are not yet operational shall be subject to the new fee structure and standards adopted July 1, 2013.

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wpcf@grafton-ma.gov

Pump Station Standards

The design engineer should note that the following are the minimum requirements for wastewater pump stations and specific sites may require additional equipment, design considerations or downstream improvements. All plans submitted will be reviewed and approved by the Sewer Department according to the following standards:

1. Submit completely scaled and dimensioned drawings in plan and cross section as required to provide a complete description of the entire system. Drawings shall be certified by a Professional Engineer and approved by the Town of Grafton. Drawings shall include at a minimum: site elevations, force main location and discharge point, on site equipment locations, wiring diagrams and all utility locations and requirements.
2. The pump station site and force main easements, as required, must be dedicated to the Town of Grafton.
3. The proposed development that the pump station will serve must generate a minimum average wastewater flow of 5,000 gallons per day.
4. Pump Station must be operational and construction must be completed within one (1) year of approval by the sewer dept.
5. Design Pump station for total drainage basin.
6. Design should include wet well for two (2) submersible non-clog pumps and a separate valve chamber. Valve chamber should include at minimum a separate shut off and check valve for each pump.
7. Pumps and control panel shall be furnished by the same manufacturer. Flygt Corp. will be the only acceptable manufacturer
8. Pumps shall be centrifugal type manufactured by Flygt Corp. Each shall have the same capacity and be able to handle the maximum design flow possible alone.
9. Grinder pumps will not be acceptable for installations designed for greater than twenty (20) units or average daily flow of greater than 8,000 gallons per day (gpd).
10. Pump motors may be constant speed or variable (provide explanation of choice).
11. Each pump shall be equipped with a stainless steel chain and two (2) inch stainless steel guide rails for easy removal of the pump from the wet well.
12. Wet well must be precast, wet well inside diameter must be a minimum of six (6) feet and floors shall have a slope of 1:1 towards a hopper bottom. Wall thickness shall not be less

than seven (7) inches for six (6) foot inside diameter and not less than nine (9) inches for eight (8) foot inside diameter wet wells.

13. Wet well sizing must be such that there is at least sixty (60) minutes of capacity between high level alarm and any overflow.
14. Wet well must be sized so that there is a minimum of one (1) foot between float switches.
15. Wet well hatch shall be aluminum and sized accordingly so pumps can be easily removed with a minimum of 2 (two) inch clearance, and have a minimum H-20 load rating.
16. If the weight of the pumps proposed exceeds the sewer depts. truck mounted crane capacity (1,600 lbs) a hoist-jib crane shall be provided. It shall be capable of lifting and removing the pumps from the wet well.
17. Pump Station shall be a duplex system with alternating lead, lag or choice of lead.
18. A spare pump of the same make and model must be provided to the dept. along with all spare parts recommended by the manufacturer.
19. For each pump a spare complete set of mechanical seals, gasket set, wear rings, bearings, and impeller must be provided before acceptance.
20. Pump control panel must be mounted inside a weather proof stainless steel cabinet.
21. Five (5) float type liquid level controllers shall be provided. They shall be located as to not be affected by flows entering the station. The five (5) Float switches will be used for – low level alarm, off, lead, lag, high alarm. The five (5) float switches shall be mounted as to be easily removed for cleaning and replacement.
22. Pump station shall be equipped with an emergency generator and automatic transfer switch capable of running all station equipment and with sufficient capacity to supply starting current required if the station is running at capacity. Generator must be diesel powered manufactured by Caterpillar or Kohler. A four (4) hour load bank test must be completed before acceptance. The generator fuel tank shall be sized to run the pump station for two (2) days at design flow. The fuel tank must be filled prior to acceptance. Automatic transfer switch must be mounted inside a stainless steel weather proof cabinet.
23. All electrical equipment shall be designed to meet current Massachusetts Electrical Codes.
24. Alarm and SCADA systems shall be provided for all pumping stations. Check with the dept. for current standard. A minimum of four (4) alarms will be required- high level, low level, pump failure, and generator running.
25. Pump Stations shall be equipped with a suitable device for measuring, recording and totalizing flow.
26. All force mains shall be cement lined ductile iron pipe. Force mains shall be designed for a minimum of three (3) feet per second and maximum of ten (10) feet per second.
27. Separate air release manhole shall be installed as required.

28. Pump stations shall be sized to contain all equipment required and to allow for off street-onsite parking of two (2) Dept. service vehicles (min size 40ft.x 40ft unless otherwise approved)
29. Pump station shall be a minimum of 100 feet from any building unless otherwise approved.
30. Pump station shall be accessible by an asphalt driveway solely dedicated to station access. Driveway shall be minimum of 14ft wide with no slope over 5%.
31. Pump station and driveway shall be a minimum of two feet above the 100 year flood elevation as shown on the most recent FEMA Flood Map.
32. Pump station shall be entirely enclosed with a minimum 7ft high chain link fence constructed of galvanized steel, vinyl coated, and colored to be compatible with surroundings. Minimum of 12ft wide gates and a 3ft pedestrian gate each equipped with heavy duty padlock hasp. Fence webbing or screening may be required at the Dept. discretion.
33. Entire fenced enclosure area shall be asphalt (no grass or shrubs).
34. A yard hydrant must be provided with adequate pressure and capacity for station wash down. The hydrant shall be located inside the fenced enclosure.
35. A flood light must be provided minimum of 500 watts.
36. The contractor shall be responsible for performing all required operational tests. Tests shall be done after all equipment has been installed and station construction has been completed. Tests shall be completed by representatives of each piece of equipment and in the presence of Sewer Dept. staff.
37. The contractor shall provide training to dept. staff for all equipment installed. Training shall be by a manufacturer representative of each piece of equipment at no cost to the town.
38. A permanent sign shall be provided at the pumping station stating at a minimum Town of Grafton Sewer Dept., station name, street address, and emergency contact number.
39. If the above conditions cannot be met, then the operation and maintenance responsibility for the pump station shall remain private. The Town of Grafton will accept no flow from a private pump station until a full operation and maintenance plan is provided and approved.

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Check List for Sewer Construction Plans

The following are the minimum requirements to address prior to any approval. All proposed sewer extensions must be constructed to facilitate progress toward the approved Comprehensive Wastewater Management Plan (August 2015). All main lines must be constructed to accommodate future anticipated flows from the entire drainage basin.

1. Sewers to be constructed in accordance with Town of Grafton's contract No. 16 and associated detail sheets.
2. All plans must be drawn by and stamped by a registered professional engineer.
3. If required, and at the Sewer Departments discretion, construction and review will be done under the supervision of the Sewer Departments resident engineer. All engineering fees will be paid by the owner. All fees must be up-to-date before any sewer construction begins.
4. The Sewer Department shall charge a fee for the inspection and testing required for sewer line construction. Current fee structure may be obtained from department staff.
5. The Sewer Department shall charge a connection fee of $5,000.00 for each residential dwelling unit and $7,500.00(min) for each commercial/industrial building that chooses to enter the public sewer system.
6. If required a Sewer Extension / Connection Permit must be signed by the Board of Sewer Commissioners and sent to The Department of Environmental Protection. No sewer construction may begin until all approvals are final.
7. Before any sewer construction begins the owner must obtain a road opening permit from the town of Grafton or state if required and an Order of Conditions from the Conservation Commission.
8. Signed easements must be provided and recorded at the registry of deeds from private land owners before any sewer work begins. If the proposed extension will become the property of the Town of Grafton Sewer Department the easements must be in the name of the Town of Grafton. All permanent easements shall be a minimum of twenty (20) feet.
9. Service connections must be provided for all potential users, houses and vacant lots.
10. All lines must terminate with a manhole.
11. A manhole must be installed at all intersections crossed.
12. Size lines for total drainage basin. Submit calculations, e.g., for domestic wastewater flows, 3.5 persons/house x 55gallons/person/day x 3.5 peaking factor. For I/I, 1500 gallons/day/inch diameter/mile x 1.5 peaking factor.
13. All gravity lines, force mains, manholes, and pump stations must be tested to and pass all Sewer Department Standards.
14. Any proposed pump station must meet the Sewer Departments Pump Station Policy.
15. Individual pump stations shall only be proposed as a last resort. Owner must provide evidence that there is no other means to sewer a piece of property. Each pump station will be considered a special feature and dealt with on an individual basis.

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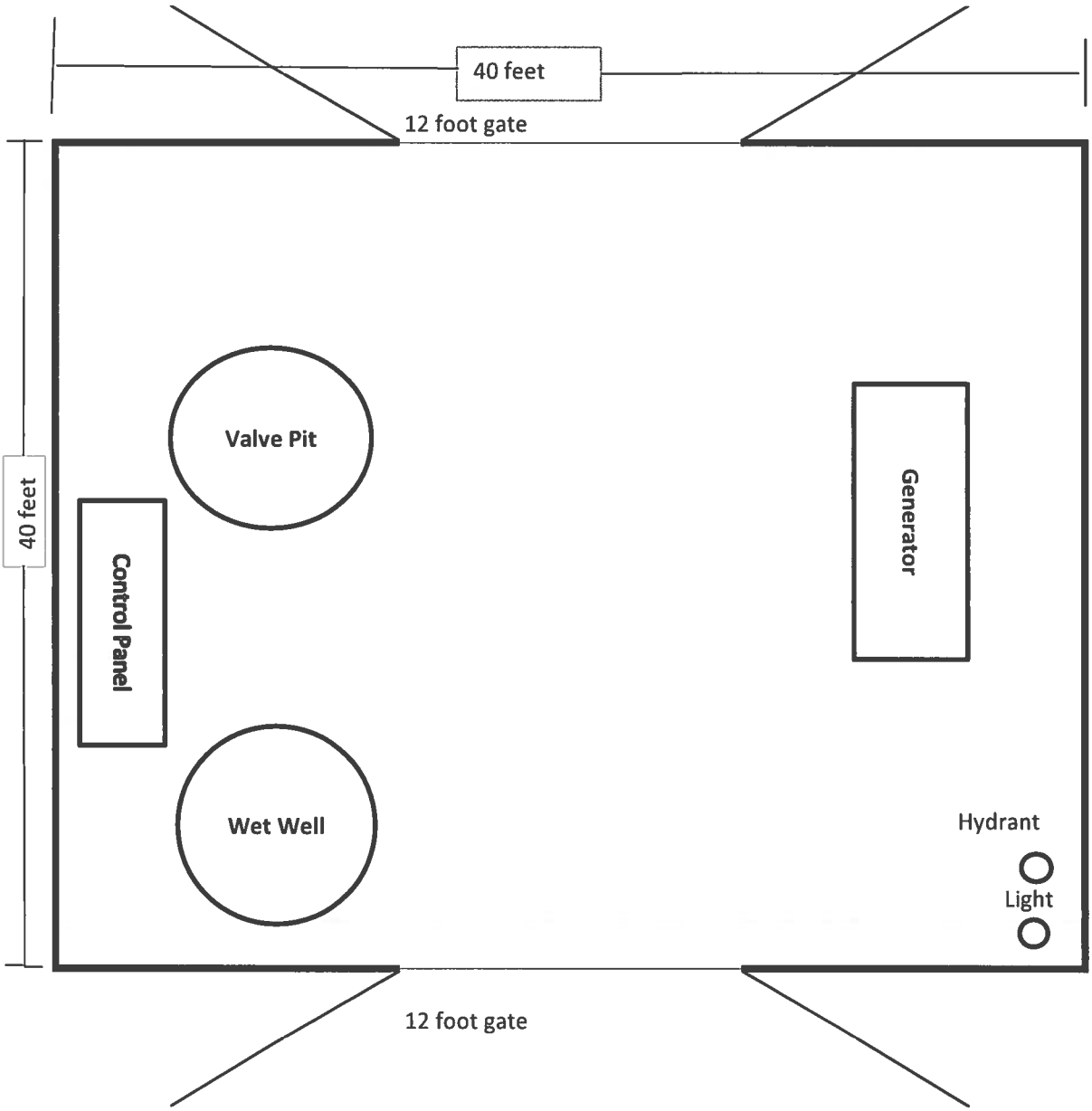
16. Any excavation and trench work done in existing public streets shall require full width paving. Contractor shall be responsible for settling and leveling for one year after all construction is complete.
17. All manhole frames and covers shall be 30 inch and marked "SEWER". 20006Z Frames and 2006A1 covers shall be East Jordon Iron Works product numbers 00200628 and 00200611.
18. Manhole frames and covers shall be adjusted using no more than five bricks, red sewer brick only.
19. All sewer manholes must be equipped with steel reinforced copolymer polypropylene ladder rungs. Rungs must be in line and carry from top to bottom of structure.
20. All manhole drops of greater than two (2) feet must be internal drops, unless otherwise approved.
21. "Dog House" style manholes are not acceptable.
22. All buildings must be sewer below the footings per the Sewer Use Ordinance, unless otherwise approved
23. All building connections must be six (6) inch SDR 35 pipe.
24. Sewers will not be considered available for use until all required testing is complete and accepted by the Board of Sewer Commissioners.
25. As-built plans must be submitted electronically and on Mylar by a registered professional engineer when the project is complete.
26. The Board of Sewer Commissioners will not grant or support final acceptance if there are any outstanding issues.
27. At a minimum the following must be shown or addressed on any plan
    a. Profiles showing slopes of all sewer pipe
    b. All other buried utilities- water, gas, electric, telephone, ect.
    c. Proposed or existing basement or sill elevations
    d. Groundwater and surface water levels and the 100 year flood elevation as shown on the most recent FEMA flood maps
    e. All pipe sizes
    f. Note that all filled areas must be ductile iron pipe
    g. Crown of sewer pipe must be 18inches below any water pipe. Maintain ten (10) feet of horizontal distance between water and sewer lines.
    h. Show stub locations for all lots
    i. Detail sheets for all proposed structures and work (trenches, laterals, manholes, ect.).

The Town of Grafton Board of Sewer Commissioners or their representative reserve the right to reject any plan that would be in its opinion injurious to the operation or future operation of the collection system or the wastewater treatment facility.

Any plan approved must have construction started with in one (1) year of approval or request an extension of time from the Board of Sewer Commissioners. If construction is not started in one (1) year plans must be resubmitted for approval.



Typical Layout

Any change requires approval from the Sewer Dept.