



DEVELOPMENT GUIDELINES

Village of Churchville
July 1998

MIRB Project No. 032003

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INTRODUCTION

I. INTRODUCTION

- A. Purpose** - This booklet has been prepared to provide criteria, standards, and guidelines for land development and public works construction in the Village of Churchville. The information is to be used by designers, developers and contractors to assure proper design and construction of facilities to protect the health, safety, and welfare of the community.
- B. Objectives** - It is not the intent of these Development Guidelines to conflict with zoning policies or general supervision of development and public facility construction by Village officials. They are intended to supplement policies of the Village of Churchville by providing the technical details required to carry out the general policies in a successful manner.
- C. Applicability** - These design criteria and construction standards shall apply to all land development and public works construction projects within the Village of Churchville.

D. Definitions

COLLECTOR ROAD or STREET

Dedicated main road or street used to carry traffic from local streets to primary street or road, including principal entrance street to a subdivision or development.

CONTRACTOR

The party of the second part to the contract or permit, the individual, firm, or corporation undertaking the execution of the work under the terms and conditions of the contract or permit and acting directly through their agents or employees.

CUL-DE-SAC

Dedicated minor street or private road open at one end, with a circular turn-a-round at the other.

DESIGN PROFESSIONAL

The New York State licensed professional engineer, architect, or land surveyor retained by the developer for preparation of plans, specifications, and estimates of probable costs for the proposed development.

DETENTION BASIN

A stormwater control structure designed to release surface and stormwater runoff from the site at a slower rate than it is collected by the drainage facility system, the difference being held in temporary storage.

DEVELOPER

The owner or agent for the owner of property being improved who shall be financially responsible to the Village of Churchville for satisfactory completion of the improvements.

ENGINEER FOR THE VILLAGE

The duly designated employee of the town or firm designated by the Village Board to provide professional engineering and technical services to the Village

EXCAVATED MATERIAL, SELECT

Dry material excavated on site, from which all pavement, concrete, cinders, ashes, refuse, organic matter, topsoil, sod, roots, frozen material, boulders, rock, or stones larger than 2 inches in the greatest dimension, or other material which in the opinion of the Engineer is not suitable, has been removed.

EXCAVATED MATERIAL, SUITABLE

Dry material excavated on site, from which all pavement, cinders, ashes, refuse, organic matter, topsoil, sod, roots, frozen material, stones larger than 6 inches in the greatest dimension, or other material which in the opinion of the Engineer is not suitable, has been removed.

GRANULAR FILL

Fill material conforming to NYS DOT 203-2.02C, with all particles passing a 4-inch square sieve.

INSPECTOR

A representative of the Village designated to inspect the materials and methods of construction for conformance with the criteria and standards of the Village .

LOCAL STREET or ROAD

Dedicated minor street or road used as access to individual properties or development, not conducive to through traffic.

MARGINAL ACCESS ROAD

Local street which is parallel and adjacent to a Primary Street or Road, and which provides access to abutting properties and provides protection from through traffic.

PRIMARY STREET or ROAD

Dedicated major road used to carry through traffic from developed neighborhoods and municipal boundaries, including all streets serving commercial and industrial developments.

PRIVATE DRIVEWAY

Undedicated drive or right-of-way used as ingress/egress to private property.

PRIVATE ROAD

Undedicated road or private right-of-way used as ingress and egress to two or more properties.

RETENTION BASIN

A stormwater structure designed to store stormwater runoff as a pool of water without release except by means of evaporation, infiltration, or attenuated release when the volume exceeds the permanent storage capacity of the permanent pool.

RIPRAP

A facing layer or protective mound of stones placed to prevent streambank erosion or sloughing of a structure or embankment due to flow of surface and stormwater runoff. A combination of large stone, cobbles, and boulders used to line channels, stabilize stream banks, and reduce runoff velocities.

SILT FENCE

A temporary barrier of geotextile fabric (filter cloth) used to intercept sediment laden runoff and reduce it's velocity to effect the deposition of the transported sediment load from small drainage areas of disturbed soil.

STRAW BALE DIKE

A temporary barrier of straw or similar material used to intercept sediment laden runoff and reduce it's velocity to effect the deposition of the transported sediment load from small drainage areas of disturbed soil.

VILLAGE

The Village of Churchville (A municipality in Monroe County, New York State), any special districts or extensions thereunder, the Supervisor, or any employee or agent of the Village designated to enforce the provisions of these Design Criteria and Construction Standards.

UTILITIES

Includes, but is not limited to, roads, sidewalks, gutters, drains, sewers, water mains, stormwater facilities, and appurtenances, either private or dedicated to the Village.

WATER BAR

A ridge or ridge and channel constructed diagonally across a sloping road or utility right-of-way that is subject to erosion used to limit the accumulation of erosive volumes of water by diverting surface runoff at predesignated intervals

E. AREAS OF RESPONSIBILITIES

DEVELOPER:

- o Retain competent legal and design professionals to provide the necessary counseling and technical information;
- o Make application to appropriate review agencies;
- o Pay all fees and charges related to the project;
- o Provide sound engineering design of all facilities;
- o Obtain all of the appropriate approvals from all review agencies and authorities;
- o Pay all review and inspection costs incurred by the Village.
- o Ensure that all construction and work is in accordance with approved plans and generally accepted standards.

DESIGN PROFESSIONAL:

- o Be licensed to practice the appropriate discipline in New York State;
- o Design project in accordance with the requirements of the Village of Churchville.
- o Provide designs that meet requirements of other review agencies;

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- o Provide engineering design that conforms to Village of Churchville and generally accepted standards.

BUILDING INSPECTOR & PLANNING BOARD CHAIRPERSON:

- o Hold initial meeting with developer;
- o Review plans for necessary permits required;
- o Review plans for compliance with zoning laws;
- o Review plans for street names.

PLANNING BOARD CHAIRPERSON:

- o Provide developer with application package;
- o Receive application for review and approval;
- o Review application for completeness;
- o Issue NOTICE OF COMPLETE APPLICATION;
- o Place project on Planning Board agenda;
- o Distribute plans and backup information to Village officials for review;
- o Submit plans to Monroe County Department of Planning for Section 239 review;
- o Publish advertisement for public hearings in official paper of the Village;
- o Mail notices to property owners within 500 feet of proposal;
- o Maintains official Planning Board files;
- o Keeps minutes of Planning Board meetings;
- o Sends out official Notice of Planning Board decisions.

ENGINEER FOR THE VILLAGE:

- o Review street and road layout;
- o Review utility design;
- o Provide recommendations to the Village of any special conditions;
- o Review easement and special district descriptions and maps;
- o Review Design Professional's estimate of probable project cost;
- o Review Developer's request for release of funds;
- o Provide inspection services as requested by the Village;
- o Make final inspections prior to expiration of warranty period;

VILLAGE ATTORNEY:

- o Provide legal guidance to board members and Village officials;
- o Review notices for public notices, format of hearings;
- o Review necessary legal papers for dedication;
- o Review easement documents;
- o Review financial security forms;
- o Review petitions for Special Districts.

VILLAGE SUPERINTENDENT:

- o Review and approve street and drainage layout;
- o Review water and sanitary sewer layout;
- o Make periodic inspections during construction;
- o May provide full-time inspection with Highway personnel or Engineer for the Village;
- o Make final inspections prior to expiration of warranty period.

BUILDING INSPECTOR:

- o Review plans to determine permits required;
- o Inspect structures for compliance with Building Code.

FIRE MARSHALL:

- o Review plans for sufficient maneuvering room for public safety apparatus;
- o Review plans for adequate water for fire protection;
- o Review plans for street names and coordinate with 911 review Board;
- o Provide the fire department with information relating to the project.

VILLAGE CLERK:

- o Receive and hold financial security from developer or contractor;
- o Release funds as advised by staff, and approved by Village Board

Part II

GENERAL MATTERS

II. GENERAL MATTERS

A. SEQUENCE OF EVENTS (Site Development) - The following sequence of events is a general outline of the procedures necessary to successfully complete a project. It is presented here as a guideline so that each project proceeds in an orderly manner. It is recommended that developers and their legal and design professionals follow these guidelines for their benefit in expediting the approval process.

1. Developer retains competent legal and design professional counseling to deal with legal and design matters, and to provide the required technical details.
2. Developer contacts the Village Superintendent & Village Clerk for guidance relating to the Village's procedures and requirements.
3. Developer contacts Village Clerk to be placed on Planning Board agenda for presentation of concept plan.
4. Developer presents a Concept Plan to the Planning Board. - *Developer should be prepared to present a plan of the proposed project and necessary related information to show how it is intended to develop the property and how the proposed development relates to adjoining properties.*
5. Developer prepares a Preliminary Plan. - *If utilities are to be connected into facilities of other agencies, the developer or a designated representative will contact the responsible agency for information on regulations and requirements.*
6. Developer applies to Planning Board for Preliminary plan review. - *Development Review Application and Checklist submitted to Village Clerk, along with appropriate fees and forms.*

Planning Board Secretary will distribute the application, plans, and backup information to appropriate boards, staff, and agencies:

<i>Official File</i>	<i>1 set</i>
<i>Planning Board</i>	<i>5 sets</i>
<i>Building Inspector</i>	<i>1 set</i>
<i>Village Attorney</i>	<i>1 set</i>
<i>Engineer for the Village</i>	<i>2 sets</i>
<i>Village Superintendent</i>	<i>1 set</i>
<i>Monroe County Planning</i>	<i>2 sets</i>

7. Village staff reviews application for completeness, and places the item on the Planning Board agenda, if complete.
8. Planning Board Secretary shall submit the preliminary plan to Monroe County Planning Department for General Municipal Law Section 239 review.
9. Developer presents Preliminary Plan to Planning Board.

10. Planning Board classifies, pursuant to New York State Environmental Quality Review Act (SEQRA), the type of action involved.
11. Planning Board makes a decision regarding the lead agency for meeting SEQRA requirements.
12. Planning Board refers the project to the Conservation Board for a recommendation.
13. Conservation Board reviews plans and makes recommendation to the Planning Board.
14. Legal Notice published in official newspaper and notices sent to properties within 500 feet of proposed projects.
15. Public Hearing held on Preliminary Plan.
16. Planning Board makes a decision on the Preliminary Plan.
17. Developer has legal and design professionals prepare Final Plans and necessary documents.
18. Final Plan presented to Planning Board.
19. Planning Board makes a decision on the Final Plan.
20. Developer petitions the Village Board to create any special districts required for the development. - *This may include SEWER, WATER, SIDEWALK, STREET LIGHTING, and DRAINAGE districts.*
21. Developer prepares and submits, with aid of its legal and design professional:
 - a. an engineer's estimate of probable project costs
 - b. Letter of Credit or other financial security
 - c. all easement documents
 - d. all offerings of dedication
22. Developer obtains the required signatures on the plans from all Village officials and agencies identified by the Planning Board.
23. Developer retains contractors to install utilities and construct other facilities of the development.

30. The Village Board passes resolutions of acceptance and appropriate documents are filed. The Village takes responsibility for and begins maintaining all facilities dedicated to the Village .
31. 90 days prior to the expiration of the warranty period, the Developer shall, IN WRITING, request final inspections. The Village will make the inspections within 30 days of the request and provide the Developer with a list of items to be corrected, if any.

Developer will make the necessary repairs or corrections PRIOR to the expiration of the warranty period, or shall provide the Village with WRITTEN extension of the warranty period.

BASIS OF DESIGN

1. GENERAL

a. The development of any property or parcel shall conform to the current zoning regulations established by the Village of Churchville. It shall also conform with all regulations established herein as well as all laws, rules, and regulations established by all governing bodies, agencies or authorities having jurisdiction over various phases of the project.

b. Where a conflict arises between these Development Guidelines, the Developer shall make known to the conflicting agencies the area of disagreement and endeavor to have such agencies resolve their differences before proceeding with the development.

REPORTS

1. Full and sufficient details and calculations for the design of all structures and facilities shall be provided to the Village for review. This includes, but is not limited to, hydraulic calculations, cross sections of drainage channels, details of facilities, and other such items as may be required by the Village to establish that the design protects the health, safety, and welfare of the public.
2. As a minimum, unless otherwise directed by the Village of Churchville, the following reports are to be provided:
 - a. Preliminary Engineering Report
 - b. Preliminary Drainage Report
 - c. Stormwater Pollution Prevention Plan
 - d. Traffic Impact Analysis
3. PRELIMINARY ENGINEERING REPORT - A preliminary engineering report is required as part of the preliminary plan review for all major subdivisions and shall include as a minimum the following information:
 - a. Basic project information including total acreage, number of lots, minimum lot size, estimated population, phasing of project, and general description of proposed

development.

- b. Water system preliminary design including estimated consumption, source of supply, pressures, and computation of required and available fire flows
 - c. Sanitary sewer system preliminary design including estimated flows, summary of design data, as specified in Section 2.5.3.
4. **PRELIMINARY DRAINAGE REPORT** - A preliminary drainage report is required as part of the preliminary drainage plan for all major subdivisions and for other projects when necessary in the opinion of the Engineer for the Village , and shall include as a minimum the following information:
- a. Run-off calculations from the undeveloped site and from the developed site.
 - b. Storm sewer, culvert and channel sizing, showing the basis of design.
 - c. Intended method of storm water disposal.
 - d. Erosion control plan including run-off control measures during grading and construction to limit erosion and sedimentation.
 - e. Design of storm water detention facilities.
5. **FINAL ENGINEERING REPORT** - The final engineering report shall expand on the information included in the preliminary engineering report, and shall include final design computations. Any significant changes from the preliminary report shall be explained in detail.
6. **FINAL DRAINAGE REPORT** - The final drainage report shall expand on the information included in the preliminary drainage report, and shall provide the following additional information:
- a. Final design data and computations of storm drainage and detention facilities.

Specific erosion and sedimentation control measures during construction.

D. PLANS

1. **CONCEPT PLAN** - The Concept Plan is an informal schematic presentation of existing features and of proposed development, and shall provide the following information:
 - a. **GENERAL.**
 - (1) Plan size not more than 22" x 34".
 - (2) Scale not less than 1" = 50'.
 - (3) Name or title of proposed project.
 - (4) Name and address of subdivider or developer.
 - (5) Written, clear statement of subdivider's intent.

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- (6) North arrow, graphic scale, date and general location map.
 - (7) Tax Map available from Monroe County Real Property Tax Services with property proposed for subdivision outlined and with adjoining property owners shown by tax account number and name.
 - (8) Ground contours for parcel and parcels adjacent to the tract to be subdivided, at intervals of not more than ten (10) feet of elevation.
 - (9) All pertinent topographic features within site and the adjoining tract, including existing buildings, watercourses, water bodies, swamps and wooded areas. Features to be retained and to be removed shall be so indicated.
 - (10) If the Developer intends to build the tract in stages, the entire tract shall be shown, with anticipated stages and time schedule indicated. All other lands contiguous to the proposal owned by the Developer shall be shown on the map with approximate area.
 - (11) Zoning district within the tract and any other legal restrictions of use.
 - (12) Names of owners of adjacent lands and names of adjacent subdivisions.
 - (13) Location of proposed project in relation to identified wetlands and to 100-year flood plain.
- b. **WATER DISTRIBUTION SYSTEM** - Schematic plan of water system and proposed source of water supply.
- c. **SANITARY SEWER SYSTEM.**
- (1) Individual Subsurface Sewage Disposal System.
 - (a) Engineer's preliminary report on soil and groundwater conditions, based on results of 1 percolation and 1 deep (minimum 8 feet depth) test pit for each 10 acres of proposed development. Percolation test and deep test pit data must be provided.
 - (b) Schematic plan of subsurface sewage disposal system.
 - (2) Public Sanitary Sewer System - Schematic plan of sanitary sewer system.
- d. **DRAINAGE SYSTEM** - Drainage study map with schematic plan of proposed system for storm water drainage.
- e. **SEDIMENT AND EROSION CONTROL** - Schematic plan of proposed system for sediment and erosion control.
- f. **ROADS AND STREETS** - Proposed street lines, lot lines, easements, and areas to be dedicated.

g SIDEWALKS - Proposed sidewalk locations.

2. PRELIMINARY PLANS - In addition to the requirements for Concept Plan, the following information shall be provided.

a. GENERAL.

- (1) If more than one sheet is required to show entire project, an index map shall be provided.
- (2) Scale not less than 1" = 50'.
- (3) Property boundaries including bearings and distances.
- (4) Existing culverts, water mains, storm sewers and sanitary sewers nearby and within the development, with their location, size, type and approximate elevation and gradients.
- (5) The approximate lines of proposed lots, the acreage contained in each lot and lot numbering.
- (6) The approximate lines and purposes of proposed easements.
- (7) The approximate location and dimensions of areas proposed for parks, playgrounds or other permanent open space.

The location of any municipal boundary, existing special district lines and existing zoning and zoning district lines within the tract.

- (9) Indications of any potentially nonconforming lots, showing required and actual area, yards and setbacks.
- (10) Typical lot layout of utility services if not shown for each lot on the plans.
- (11) Finished Floor elevations for each proposed house or building.

b. WATER DISTRIBUTION SYSTEM.

Public Water Supply.

- (a) Location and size of existing water main including nearest hydrant.
- (b) Proposed source of water supply and preliminary plan of water system including water main sizes and hydrant locations.
- (c) Location, size and material of proposed water services.
- (d) Meter pits provided for water services over 250 feet in length as measured from the house to the existing water main. Include Typical Detail on Detail Sheet.

c. **SANITARY SEWER SYSTEM.**

- (1) Public Sanitary Sewer System.
- (a) Plans and profiles shall show manhole stationing, size of sewers, surface and invert elevations at manholes, grade of sewers between adjacent manholes, and details of all standard and special appurtenances and structures.
- (b) Sanitary sewers shown at sufficient depth to provide service to basements.
- (c) Sanitary manholes placed not more than 300 feet apart.
- (d) Vertical separation distance of 2 feet provided between parallel sanitary sewers and storm sewers to provide clearance for crossing of building sewer and drains.
- (e) Location and size of proposed sanitary sewer lateral.
- (f) Approval from Monroe County Department of Public Works.

d. **DRAINAGE SYSTEM**

- (1) Drainage Study Map.
- (2) Plan of storm drainage system.
- (3) Calculations for sizing of storm sewers, culverts, and channels.
- (4) Storm sewer manholes placed not more than 300 feet apart.
- (5) Runoff calculations for the undeveloped site based on a 10-year storm frequency.
- (6) Runoff calculations for the developed site based on a 10-year storm frequency.
- (7) Calculations for determination of storage volume required.
- (8) Storage volume provided.
- (9) Design high water level elevations for storm frequencies being evaluated.
- (10) Controlled outlet structure provided for design year flows which provides a gradual release of flow from the pond not to exceed the existing flow.
- (11) Anti-vortex device and trash rack provided for outlet structure.

Outlet pipe sized to handle flows in excess of design flows.

- (13) Calculations for flow through outlet structure that shows a gradual release in flow from the pond not to exceed the existing flow.
- (14) Controlled overflow provided for flows in excess of design storm flows.
- (15) Calculations should be provided for the sizing of weir, trickle tube, and the inlet and outlet pipes for the outlet structure.
- (16) Invert elevations for the inlet and outlet pipes, orifices and top of the outlet structure and the elevation of the overflow spillway.
- (17) Minimum 2 feet of freeboard provided above design high water level.
- (18) Controlled overflows using emergency spillways designed with spillway crest no less than 2 feet below top of pond embankment and 1 foot above design high water level.
- (19) Cross-section through detention pond from inlet to outlet including the elevation of the top of embankment and design high water level.
- (20) Concrete gutter provided in pond bottom where appropriate to carry low flows.
- (21) Pond embankments minimum side slope of 1V:3H.
- (22) Seepage control collars provided for piping through pond embankment.
- (23) Evaluation of the effect of flows in excess of design flows on detention facility and outlet structure.
- (24) Evaluation of the downstream facilities to determine if the existing facilities have sufficient capacity to accept the anticipated concentrated flows from the proposed project.

e. SEDIMENT AND EROSION CONTROL.

- (1) A preliminary grading plan of the site, showing locations and approximate size of cuts and fills and cross sections for any final grading steeper than three (3) horizontal to one (1) vertical.
- (2) A tracing overlay showing soils and their classification and those areas, if any, with moderate to high susceptibility to erosion. For areas with potential erosion problem, the developer shall also include a description and outline of existing vegetation.
- (3) Preliminary erosion control plan including details of standard and special structures.

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- (4) Rip rap provided at the ends of storm sewers where discharge is into swales, turf-lined channels and detention pond.
 - f. **STREETS AND ROADS.**
 - (1) Existing street immediately adjoining and within the development and the distance to the nearest major street intersection.
 - (2) The approximate lines and grades of proposed streets and sidewalks, and the names of the proposed streets.
 - (3) Turnarounds provided at dead ends of subdivision roads.
 - (4) Sight distances indicated.
 - (5) Driveway locations shown.
 - (6) Adequate foundation course for driveway to support emergency vehicles provided for proposed driveways which exceed 200 feet in length or have a non-linear alignment. Vehicle turnarounds also provided.
 - 3. **FINAL PLANS** - In addition to the requirements for Concept Plan and the Preliminary Plans, the following information shall be provided on the Final Plans:
 - a. **GENERAL**
 - (1) Final subdivision plans shall include the following separate sheets:
 - (a) Subdivision Plat Record Plan.
 - (b) Grading and Drainage Plan - showing existing and proposed contours at intervals of not more than two (2) feet.
 - (c) Utility Plan
 - (d) Landscaping Plan - showing street trees, including varieties and minimum size, and existing trees to be preserved.
 - (e) Street Lighting Plan - showing approximate locations of street lighting fixtures and details of decorative and architectural street lighting, if proposed.
 - (2) Name, address and signature of owner of record.
 - (3) The layout of proposed lots, including lot numbers, meets and bounds and acreage of each lot.
 - (4) Location of all proposed buildings.
 - (5) Easements provided for all dedicated facilities located outside road right-of-

way.

- (6) Bearings and distances for easements shown on plan.

b. WATER DISTRIBUTION SYSTEM.

- (1) Public Water Supply - Final Plans and details of water distribution system.

c. SANITARY SEWER SYSTEM.

- (1) Public Sanitary Sewer System

- (a) Final plans, profiles and details of sanitary sewer system.

- (b) Approval of Monroe County Department of Health, Monroe County Pure Waters, and New York State Department of Environmental Conservation, if required.

d. DRAINAGE SYSTEM.

- (1) Final plans, profiles and details of storm drainage system including detention facilities.

- (2) Drainage easements provided for storm sewers and inlets not located in right-of-way, detention facilities, and swales or streams that carry uphill drainage across downhill lots.

e. SEDIMENT AND EROSION CONTROL.

- (1) Locations and details for erosion control measures.

- (2). Areas disturbed by grading indicated to be re-seeded as soon as possible.

f. STREETS AND ROADS:

- (1) Lines and grades of proposed right of way, pavement and sidewalk.

- (2) Typical cross-sections of proposed streets.

- (3) Profiles of proposed streets.

- (4) Proposed location of monuments.

- (5) Easements including descriptions and dimensions.

Note on plan indicating that street and traffic signs shall be provided as required by the Design Criteria and Construction Standards.

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- E. FINANCIAL SECURITY** - To ensure that all facilities are constructed, the developer shall post with the Village of Churchville financial security as described below.
1. The developer shall have the design professional prepare a detailed estimate of probable costs for the facilities. The estimate may include, but not be limited to, probable construction costs for:
 - a. Facilities to be dedicated, including:
 - o erosion control costs
 - o earthwork
 - o stormwater drainage
 - o sanitary sewers
 - o pumping stations
 - o water facilities
 - o streets and roads
 - o sidewalks
 - o street lighting
 - o recreation facilities
 - o landscaping
 - o miscellaneous
 - street signage
 - b. Facilities required for approval: special facilities, conditions, or equipment required as a part of agency reviews and approvals.
 - c. Contingency: 10% of dedicated or required facilities.
 - d. Design engineering fees: contractual amount (unless paid).
 - e. Inspection fees: minimum of 5% (may be higher if project conditions require).
 - f. Other costs: as may be required by the Planning Board.
 2. Prior to posting the required financial security, the Developer shall submit the estimate of probable construction costs to the Engineer for the Village for review and recommendation.
 3. After review, and revision if necessary, the Engineer for the Village shall make a recommendation to the Village Clerk/ of the minimum amount that should be posted prior to the issuance of any Notices to Proceed.
 4. The minimum amount recommended shall be posted with the Village Clerk in one of the following forms, conforming to §277 of New York State Village Law:
 - a. Performance Bond: written by a bonding or surety company licensed to do business in New York State.
 - b. Cash security: certified check or certificate of deposit issued by a bank or trust company located and authorized to do business in New York State.

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- c. Irrevocable Letter of Credit: from a bank licensed to do business in New York State.
 - d. Other obligations: conforming to the requirements of §277 of New York State Village Law.
5. All forms of the financial security shall be approved as to form, sufficiency, and manner of execution by the Village Attorney prior to posting with the Village .
 6. Financial security posted by the Developer shall run for a term fixed by the Planning Board, but in no case longer than three years, provided, however, that the term of such performance guarantee may be extended by the Planning Board and with the consent of the parties.
 7. If the required improvements or facilities are not constructed within the period established, or extended, by the Village , the Developer may be declared in default and the Village may collect the amount payable under the performance guarantee. Upon receipt of such amount, the Village shall arrange for the work to be completed.
 8. Partial releases of the funds will be made by the Village Clerk upon certification by the Developer and Design Professional, recommendation from the Engineer for the Village and endorsement by the Village Superintendent. When requesting a release of funds, the Developer shall have the design professional prepare an estimate of completed construction. The estimate, along with a Project Financial Statement (sample copy is in Appendix B) signed by the Developer and Design Professional, shall be submitted to the Engineer for the Village for review. The Engineer for the Village will review the estimate and provide a recommendation. Upon recommendation by the Engineer for the Village , the Project Financial Statement and estimate shall be submitted for endorsement by the Village Clerk. The Village Supervisor will then release the amount recommended.

Partial releases, recommendations by the Engineer for the Village , and endorsements by the Village Superintendent shall not be construed as acceptance of any of the work by the Village .
 9. Final release of financial security will be authorized by the Village Board when all of the appropriate items of the Development Application & Checklist are completed and signed off by the appropriate Village official. In no event will the financial security be released until the receipt by the Village of appropriate maintenance bonds and certified Record Plans.
- F. NOTICE TO PROCEED**
1. Under no circumstances will construction or improvements be started by any Developer or Contractor until all approvals are obtained and a NOTICE TO PROCEED is issued by the appropriate Village Official.
 2. No construction is to be undertaken prior to notifying the Village and other agencies,

IN WRITING, 48 hours before commencing work.

G. WARRANTEE

1. All work will be guaranteed by the Developer for a period of one year from the date of written acceptance by the Village, unless a longer period is required due to exigent conditions.
 - a. The Developer shall post with the Village Clerk a Maintenance Bond in the amount of 10% of the final construction costs.
 - b. The bond shall be written by a surety licensed to do business in New York State.
 - c. The amount of the bond shall be reviewed and acceptable to the Engineer for the Village, and the form of the bond shall be acceptable to the Village Attorney.
 - d. Bonds shall be for a minimum of 1 year from the date of written acceptance by the Village .

H. REQUIREMENTS FOR DEDICATION

1. The following must be completed and approved by officials of the Village before any facilities can be accepted for dedication:
 - a. **CONSTRUCTION COMPLETED** - Construction of all facilities to be dedicated shall be fully completed by the Developer, inspected, tested, and found acceptable to the Village .
 - b. **GRADING** - Final grading, fertilizing, seeding, and mulching of disturbed areas within right-of-ways and other lands to be dedicated shall be completed. All excess material shall have been removed from the site.
 - c. **AGENCY APPROVAL** - Copies of all approvals and acceptance by other involved agencies must be submitted to the Village .
 - d. **MONUMENTS AND PROPERTY MARKERS** - shall be set in the required locations and plotted on the Record Plans.
 - e. **STREET AND TRAFFIC** signs shall be installed by the Village Department of Public Works in their designated locations and approved by the Village Superintendent.
 - f. **RECORD DRAWINGS** containing the following information:
 - (1) Location, sizes, elevations, lengths, slopes and invert and top elevations of all manholes, inlets, sanitary and storm sewers, and water mains and appurtenances.
 - (2) Significant elevations of drainage swales and other key surface elevations.

- (3) The locations of all valves, curb stops and hydrants including ties from permanent structures.
- (4) Finished profiles and typical cross-sections of road surfaces.
- (5) The locations of building sewer, storm lateral and water service curb box at the property line or easement line of each individual lot.
- (6) Any other significant details affecting the operation or maintenance of the system by the Village .
- (7) The location of buildings and other permanent features.

All rights-of-way and easements.

- (9) 6 copies to the Village Superintendent
- (10) 1 Mylar original to the Village Superintendent
- (11) 1 copy to the Planning Board
- (12)_ 1 copy to the Building Inspector

Part III
DESIGN CRITERIA

III. DESIGN CRITERIA

- A. **GENERAL** - Development of land and projects in the Village of Churchville shall conform to all appropriate laws, rules, regulations, established by all governing bodies having or claiming jurisdiction over various phases of the project.
- B. **OTHER STANDARDS** - References to other standards and specifications shall mean that the applicable portions thereof shall be followed as if such specifications or standards were incorporated in this Development Standard.
- C. **RESPONSIBILITY FOR DESIGN**
1. Ultimate responsibility for providing sound engineering design of all facilities rests with the Developer. Designs shall be prepared by a Design Professional licensed to practice the appropriate discipline.
 2. Design information, engineering reports, plans and specifications shall provide the information required by these Development Standards and any additional information that may be required by the Planning Board or any other review agency.
 3. If any submitted information or data is revised, the revisions shall be noted and dated by the Design Professional on subsequent submissions.
- D. **EROSION AND SEDIMENTATION CONTROL**
1. **GENERAL**
 - a. Uncontrolled erosion and sediment from construction activities and development sites may cause considerable environmental and economic damage to individuals and society. Proper design of such projects shall include erosion and sediment control measures. Appendix A of the New York State Department of Environmental Conservation TOGS 5.1.10 provides guidance for initiating erosion and sediment control plans.
 - b. Erosion and sedimentation control measures incorporated into the project shall conform to the latest edition of *New York Guidelines for Urban Erosion and Sedimentation Control*.
 - c. It is the developer's responsibility to certify that the design and construction specifications for the erosion control measures are adequate and meet all requirements.
 2. **EROSION CONTROL**
 - a. The developer shall submit an erosion control plan as part of the review process. The erosion control plan shall consist of maps and other information showing the existing features, the existing proposed contours, and applicable erosion control methods including the following:
 - (1) Fitting the development plan to the topography and type of soils to minimize the erosion potential.

- (2) Exposing the smallest practical area of land at any one time during development.
- (3) Providing for temporary vegetation, mulching or other soil stabilization to protect critical areas during construction.
- (4) Returning and protecting natural vegetation wherever possible.
- (5) Installing permanent final vegetation and structures as soon as practicable.
- (6) Providing protective measures for slopes in excess of 10% and minimizing such steep grading. Terracing of steep slopes should be considered to minimize erosion potential.
- (7) Providing rip-rap and stone fill at points of discharge of storm sewers into open channels, ponds and swales.
- (8) Completing phases of construction as quickly as possible and stabilizing disturbed areas.
- (9) Providing a landscaping plan and planting schedule. Ground cover shall be selected to minimize future maintenance and provide plant hardiness.

3. SEDIMENT CONTROL

- a. All siltation and sedimentation caused by erosion due to clearing, grading and removal of vegetation or other ground cover shall be retained on-site. Use interceptor swales at the base of disturbed areas, draining to temporary settling basins with sediment sinks. The storm sewer systems shall also temporarily drain to settling basins until sufficient turf has been established on graded areas to prevent erosion.
- b. The following guidelines shall apply in the design of settling basins and sediment sinks.
 - (1) The estimated quantity of silt caused by erosion and the silt storage volume below the settling basin flow line shall be determined using the Soil Conservation Service Methods. However, in no instance shall the sediment sink storage volume below the flow line be less than 0.5 acre-inch per acre of disturbed area of the site.
 - (2) The design of the settling basin shall prevent short-circuiting. Generally, the length of the pond shall be at least twice the width, with the inlet and the outlet at opposite ends. Entrance swales and pipes shall be designed to discharge at the bottom of the pond to prevent erosion at the entrance point.

- (3) The settling basin shall be designed with a minimum two-foot deep sediment sink below flow line, together with 0.5 acre-inch of storage per acre of disturbed development site. These two dimensions together with the 2:1 length to width ratio shall determine pond geometry. These are minimum values and shall be increased if required by soil type or duration of project.

E. STORMWATER FACILITY DESIGN

1. GENERAL

- a. Detention/retention ponds, sedimentation basins and related control measures shall be provided where in the judgement of the Village such facilities may be required for proper drainage control.
- b. Stormwater drainage facilities shall include the street drainage system, a system of back-lot line drainage swales, side-lot line drainage swales, main drainage channels through the project, and detention/retention facilities.
- c. Preservation and improvement of natural streams, channels, and watercourses through the project is preferable to the construction of new drainage channels, and whenever practicable, such natural watercourses shall be preserved and/or improved.
- d. Stormwater discharges from construction and development sites shall be no greater than occur under existing, undeveloped conditions immediately prior to development.
- e. Stormwater facility design shall not be based on the size of downstream culverts and channels.
- f. Stormwater drainage conveyance facilities shall be designed to adequately convey the anticipated runoff from the fully developed site as well as all current flows through the site.
- g. Open channels serving as main drainageways normally will not be accepted where, by engineering design, it has been established that the future flow (under conditions of full development) could be conveyed in a pipe system having an N value of 0.013, up to and including 48 inches in diameter. Developers and their Design Professional bear the responsibility of providing technical design data in this regard, which shall be submitted to the Village and the Engineer for the Village, whose approval or disapproval of this data shall be final and binding.
- h. Anticipated rainfall events shall be estimated using the *RAINFALL INTENSITY CURVES for Monroe County* by Monroe County Planning Council.
- i. Complete and sufficient details of hydraulic structures shall be submitted as part of the plans. This includes, but is not limited to, cross-sections of

drainage channels erosion control facilities, special manholes, and all such other items as may be necessary to establish fully the methods and materials to be followed in construction.

j. Easements shall be provided for all stormwater facilities that are to be dedicated to the Village that lie outside a dedicated right-of-way. The easements shall be designed to provide adequate access from a public right-of-way. They shall be sized and located to allow construction and maintenance equipment safe and timely access to the facility. Minimum width shall be 20', and where possible taken from a single lot.

k. Recommended design guides:
ASCE Manual of Engineering Practice No. 37, Design and Construction of Sanitary and Storm Sewers by American Society of Civil Engineers.

Urban Hydrology for Small Watersheds, Technical Release No. 55 by Soil Conservation Service, U.S. Department of Agriculture.

Highway Permit Requirements and Policies for Residential and Commercial Development within the Public Right-of-Way by Monroe County Department of Transportation.

l. Materials shall be in accordance with Part 4 - Construction Standards.

2. HYDROLOGIC DESIGN

a. Storm sewers and other drainage facilities for drainage areas up to **1,000 acres** shall be based on a design flow with a minimum reoccurrence interval of **10 years**.

b. The design of drainage facilities for larger drainage areas and for natural watercourse channels shall be based on the drainage area according to the following:

<u>Drainage Basin Size</u>	<u>Reoccurrence Interval</u>
1000 acres to 4 sq. miles	25 years
4 sq. miles to 20 sq. miles	50 years
20 sq. miles and above	100 years

c. For drainage areas of 100 acres or less, runoff within the development shall be computed by the Rational Method, using a 10-year storm.

d. For drainage areas larger than 100 acres and for major channels or conveyance systems transporting stormwater through the development, the design shall be based on the Soil Conservation Service methods using the appropriate reoccurrence interval.

- e. The minimum coefficient of runoff within the development shall be 0.4.
- f. Time of concentration to the first inlet shall not be higher than 15 minutes.
- g. Stormwater piping systems shall be designed using:
 - for smooth pipe N = 0.013
 - for rough CMP N = 0.024

3. DETENTION/RETENTION FACILITIES

- a. The Village of Churchville has determined it to be desirable to require stormwater detention/retention facilities in certain areas. There are various reasons for this, not the least of which is that continual upstream development overtaxes downstream natural watercourses as well as man made drainage facilities. Secondly, these increased rates of stormwater runoff cause environmental problems downstream such as highly erosive velocities, flooding and overtopping of the banks. Consequently it has been determined advisable to insist upon detention basins where appropriate and to have these detention basins designed in a manner compatible with the particular problem.
- b. While the Village reserves the right to establish particular parameters in each individual instance, the general philosophy is to permit runoff from any development in an amount no more than would normally occur under a natural, undeveloped condition for the particular design storm. That is, the Village generally agrees that property owners along the downstream channel should be prepared to accept a rate of discharge from the upstream areas equivalent to the discharge from the upstream area under existing undeveloped conditions.
- c. It should be pointed out the Village reserves the right to establish other, more restrictive parameters. For example, if the downstream area has been subjected to floods in the past, even while the upstream areas were not developed, and if the Village deems it desirable and appropriate to remedy this situation, it may, at its discretion, require an impoundment area of a size and type, as well as storm sewers and culverts, which can assist in rectifying the downstream flooding situation. This downstream flooding situation might be a case where backyards flood rather frequently, or where downstream piping systems are overtaxed, possibly causing backup into cellars and yards, etc.
- d. The following design procedure will assist the Design Professional in developing a stormwater control plan:
 - (1) Determine the design storm recurrence (i.e., ten (10) years, twenty-five (25) years, fifty (50) years, etc.) from the local design specifications.
 - (2) Using topographic maps and the appropriate charts and graphs, determine the maximum expected natural rate of runoff for the design storm. Factors affecting this number include slope of land, surface cover, area of drainage basin, and the presence or lack of well defined

natural channels. This number now places a ceiling on the allowable discharge from any development in the area under question for the given design storm.

- (3) Design the collection system using the standard rational method.
($Q = CIA$) ($C = 0.4$)
 - (4) With an area designated for the location of the pond, determine the maximum depth of the pond.
 - (5) Design an outlet structure which discharges water as a continuous function of head and which will discharge the maximum allowable flow at maximum pond depth.
 - (6) Draw inflow hydrographs for a number of design storms of different duration's and make a straight line approximation to an outflow hydrograph starting with $Q_0 = 0$ at $t_0 = 0$ and assuming that good pond design is based on the outflow reaching its peak just as the inflow equals the outflow.
 - (6) Calculate the accumulated volume for each of the above cases. The one giving the greatest volume is the critical storm for this detention pond.
 - (8) If desired, make a more detailed analysis using the now-determined critical storm and standard flood routing techniques. Otherwise, use the above-estimated volume and size the area of the pond.
 - (9) If an outlet, which discharges water as a continuous function of head, is used, lesser storms should discharge approximately proportionally lesser flows.
- e. Plans shall show the basin location, size of inlet and outlet structures and adequate safety features, such as fencing, etc.
 - f. Ponds shall be designed to accept runoff from the design storm of appropriate return interval based on the drainage area and to provide the required detention retention volume.
 - g. Minimum freeboard above design high water level shall be 2 feet.
 - h. Controlled overflow structures shall be provided for flows in excess of the maximum design flow.
 - i. Temporary settling basins or sediment sinks shall be provided as specified under sediment control in these Standards.

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- j. Trickle tube outlets shall include anti-vortex devices and trash racks.
 - k. Controlled overflows using emergency spillways shall be designed with spillway crest not less than 2 feet below top of pond embankment and 1 foot above design high water level.
 - l. Pond embankments shall be designed with minimum side slopes of 1 on 3.
 - m. Seepage control collars shall be provided on piping passing through embankments.
 - n. Bottom of ponds shall be designed with a minimum longitudinal slope of 0.5% to drain completely between storms.
 - o. A concrete gutter shall be provided between the inlet and the outlet of the pond where appropriate to carry dry weather flows.
4. **STORMWATER CONVEYANCE SYSTEMS**
- a. Minimum size of pipe used for stormwater conveyance shall be 12-inch diameter.
 - b. Manholes shall be sized in accordance with the chart on SS-2 Standard Manhole Dimensions in Part 5.
 - c. Manholes shall be spaced no farther than 300 feet apart.
 - j. Inlets and catch basins shall be spaced no farther than 300 feet apart, at low points, at street intersections, and at major high traffic driveways.
 - k. Storm sewers shall be designed with uniform grade and straight alignment between inlets, manholes, and outlets.
 - l. Sufficient grade shall be provided to prevent settling of grit in the sewer. Minimum velocity in storm sewers shall be 3 feet per second when flowing full.
 - m. Stormwater drains along side lot lines shall extend to the rear lot line or to the main channel to which it is discharging.
 - n. Building drains shall be minimum 4-inch diameter, at a minimum slope of 1/4-inch per foot.
 - n. Design of stormwater conveyance systems shall be such that surcharge of the system will not cause a backup or flooding of cellars and basements.

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- o. Roof and basement drains shall not be connected to storm sewers unless:
 - (1) The storm sewer system is designed for the additional flows, AND
 - (2) the cellar or basement floor is higher than the pavement grade in order that the street drainage system can run fully surcharged, OR
 - (3) the cellar or basement drain discharges through a sump pump and check valve.
 - p. Where side yard drainage flows toward the proposed right of way a drainage inlet shall be provided to intercept overland flow and tied to the proposed storm sewer. At no time shall side yard drainage flow over proposed sidewalk.

5. FLOOD HAZARD CONTROL

- 1. Inundation and excessive ground water seepage shall be controlled by site grading and by the establishment of adequate elevations of buildings, building openings and roadways above the project design high water levels.
- 2. Particular care shall be used in the design of developments in the vicinity of designated flood plain areas as defined by the National Flood Insurance Program or known high groundwater problem areas. The effect of such development on upstream and downstream areas and adjacent properties shall be considered, and adequate protective measures shall be included in the design.
- 3. Proposed developments within the special Flood Hazard Area as defined by the National Flood Insurance Program shall comply with the regulations required by the Flood Insurance Program.
- 4. Development within or adjacent to flood plains shall also comply with current Village requirements and NYS Department of Environmental Conservation regulations.

F. SANITARY SEWAGE FACILITY DESIGN

1. GENERAL

- a. Public sanitary sewers shall be provided wherever existing sanitary sewers are reasonably accessible in the opinion of the Planning Board.
- b. Only those developments that cannot be served by extension of public sanitary sewers and approved by the Village may be designed with individual sewage disposal systems. The Developer is responsible for obtaining all necessary approvals for such systems from all involved regulatory agencies.

2. PUBLIC SANITARY SEWERS

- a. Design shall conform to the following standards supplemented and superseded by additional requirements as listed:
 - (1) *Recommended Standards for Sewage Works*, by Great Lakes-Upper Mississippi River Board of State Sanitary Engineers. (Ten-State Standards).
 - (2) *Requirements for Privately Constructed Sanitary Sewers in County Sewer Districts*, by Monroe County Department of Engineering.
- b. Materials shall be in accordance with Part 4 - Construction Standards, and shall conform to Part 5 - Standard Details of these Development Guidelines.
- c. Sewer pipe shall be designed by the Design Professional. Height of cover, nature of foundation soil, type of bedding and trench width shall be used in selecting and specifying the pipe.
- d. If design conditions can not be met in the field, the contractor shall be responsible for providing extra strength bedding, cradle or encasement.
- e. Other types of sewer pipe than those specified in these Development Guidelines may be used when to meet unusual conditions when approved by the Engineer for the Village. Special bedding conditions may be required as a result of such approvals
- f. Manholes shall be spaced at intervals not greater than 300 feet.
- g. Manholes shall be provided at all changes in horizontal alignment of the sewers.
- h. Depths of sewers shall be sufficient to serve basements of all houses in the development by gravity where possible.
- i. The minimum inside diameter of manholes shall be as specified on STANDARD DETAIL - Standard Manhole Dimensions (SS-2).
- j. Design of sewer profiles shall give consideration to the relationship of building elevation to sewer elevation to assure that laterals have a minimum grade of 1% (one-eighth inch fall per one foot length of lateral).
- k. A drop of 0.3 feet shall be provided through each manhole for all changes in horizontal alignment.
- l. Building laterals shall be 4-inch diameter minimum, at a minimum slope of 1/4-inch per foot.

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- m. Cleanouts shall be provided for building laterals at all horizontal bends and at every 75 feet.
 - n. A vertical separation of two (2) feet shall be provided between parallel sanitary sewers and storm sewers to provide clearance for crossing of building laterals and drains.
3. PUMP STATIONS
- a. Sewage pump stations shall be compact, pre-engineered stations as directed and approved by the Village Department of Public Works and Village Engineer. Sizing and dimensions shall be designed in accordance with the latest requirements of the New York State Health Department and the Monroe County Department of Health.
 - b. Pump stations shall be protected from physical damage by the 100-year flood. They should be designed to remain fully operational and accessible during 25-year flood events.
 - c. The pump station shall be designed to be readily accessible by maintenance vehicles during all weather conditions.
 - d. Each station shall have two horizontal, self-priming sewage pumps, specifically designed for pumping raw, unscreened, domestic sanitary sewage.
 - e. The station enclosure shall contain and enclose all pumps and equipment, and shall be designed to enhance serviceability. An exhaust blower, sufficient to exchange station air once every two minutes, shall be provided in the enclosure.
 - f. Each pump shall be equipped with a full flow type check valve, capable of passing a 3" spherical solid.
 - g. The pump motors shall be horizontal, open drip proof, inductive type, with normal starting torque and low starting current characteristics suitable for AC electrical current.
 - h. Drive systems with a safety factor of less than 1.5 shall not be considered. Computation of safety factors shall be based on performance data published by the drive manufacturer.
 - i. Electrical control equipment shall be equipped within dead front type control enclosures fabricated of steel. Enclosures shall be designed to be hinged with neoprene gaskets and captive closing hardware, compliant with NEMA standards.
 - j. All operating controls shall be clearly labeled to indicate function.

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- k. Pump station shall be designed with a 115 VAC, 60 Hertz, single-phase current duplex receptacle mounted on the side of the control panel enclosure. The receptacle circuit shall be designed to be protected by a 15-ampere thermal-magnetic circuit breaker.

 - l. A level control system shall be designed to start and stop the pumps in response to changes in the wet well level, level sensing shall be pressure transducer, as manufactured by consolidated electric, or equal. Mercury float switches, or their equivalent, are not acceptable. It shall be designed to continuously monitor the wet well level. Operating sequences shall be as follows:
 - (1) When the liquid level in the wet well rises to the "LEAD PUMP ON" level, the control system shall start the motor for one pump.
 - (2) When the liquid level is lowered to the "LEAD PUMP OFF" level, the control system shall stop this pump.
 - (3) Should the liquid level rise to the "LAG PUMP ON" level, the system shall start the second pump so that both are operating to pump the level down.
 - (4) Both pumps shall shut off at their respective "OFF" levels.

 - m. To ensure equal operation of the pumps, the control system shall be designed with an alternator relay to select first one pump, then the second pump, to run as LEAD PUMP for a pumping cycle. Alternation shall occur at the end of a pumping cycle.

 - n. Separate alarms shall be designed into the control system for "HIGH LEVEL" and "LOW LEVEL".
 - (1) In the event the liquid level reaches a preset high level in the wet well, the alarm shall activate an external alarm device consisting of an audible alarm and a flashing red light. An indicator, visible on the front of the control panel, shall indicate that a high wet well level exists.
 - (2) In the event the liquid level reaches a preset low level in the wet well, this alarm shall activate a relay in the pump control system to prevent the pumps from operating. It shall also activate the visual and audible alarms. An indicator, visible on the front of the control panel, shall indicate that a low wet well level exists.
 - (3) In both cases, an alarm silence switch and relay shall be designed into the system to permit maintenance personnel to de-energize the external alarms while corrective actions are being taken. After silencing the alarm devices, manual reset of the switch shall provide automatic reset

of the alarm silence relay.

- o. Control system shall be equipped with a four- (4) channel auto-dialer system for remote monitoring/alarm of system.

G. Water Supply

1. GENERAL

- a. Public water supply shall be provided wherever existing water mains are reasonably accessible in the opinion of the Planning Board.
- b. Only those developments that cannot be served by extension of public water systems may be designed with individual wells as approved by the Village.
- c. The Developer is responsible for obtaining approval for individual wells from the NYS Department of Health.

2. POTABLE WATER

a. PUBLIC WATER SYSTEMS

- (1) Design shall conform to the following standards supplemented and superseded by additional requirements as listed.
 - (a) *Recommended Standards for Water Works*, by NYS Department of Health, Bulletin 42.
 - (b) Fire Suppression Rating Schedule, by Insurance Services Office of New York.
- (2) Water systems shall be designed to provide fire flows required by ISO while satisfying average daily domestic demand and to maintain a minimum pressure of 20 psi at ground level under all flow conditions at all points in the distribution system.
- (3) Materials shall be in accordance with Part 4 - Construction Standards, and construction shall conform to Part 5 - Standard Details.
- (4) Minimum size of water mains shall be 8-inch Ductile Iron Pipe, except as otherwise permitted by these Standards.
- (5) Water mains larger than 8-inch may be required by the Planning Board where the water system is part of adjacent transmission or distribution network.
- (6) Water services shall be minimum 1-inch size, type K-copper and shall extend to the right-of-way line or easement line of all individual lots.
- (7) Meter pits shall be provided for individual services that are longer than 250 feet from the water main. Long service meter pits will need approval of the Village Superintendent and Village Engineer.

- (8) Hydrants shall be located within 1 foot of the property line. No part of the hydrant shall extend onto private property.

H. ROAD AND STREET DESIGN

1. GENERAL

- a. Design of streets and roads shall conform to the following guidelines, as supplemented and superseded by additional requirements listed in the Village of Churchville Development Guidelines:
- (1) *A Policy of Geometric Design on Highways and Streets*, by the American Association of State Highway and Transportation Officials (AASHTO).
 - (2) *Geometric Design Guide for Local Roads and Streets*, by the American Association of State Highway and Transportation Engineers (AASHTO)
 - (3) *Highway Permit Requirements and Policies for Residential and Commercial Development within Public Right-of-Way*, by Monroe County Department of Transportation.
- b. In addition to the required improvements specifically referred to elsewhere in these Development Guidelines, the design shall provide for all other customary elements of street construction and utility service which may be appropriate as determined by the Planning Board upon consultation with the Engineer for the Village.
- c. Materials used in street and road construction shall be as required in Part 4 - Construction Standards of these Development Guidelines.
- d. Such elements may include, but shall not be limited to, street pavement, gutters, stormwater inlets, manholes, curbs, sidewalks, street-lighting standards, water mains, fire hydrants, fire alarm signal devices and sanitary sewers. Underground utilities within the street right-of-way shall be located as required by the Village Superintendent and/or the Engineer for the Village, and underground service connections to the property line, or to the house side of permanent easement, of each lot shall be installed before the street is paved or electric is installed.
- e. Street and road systems shall be designed with due regard for convenient traffic access and circulation; traffic control and safety; access for fire fighting and emergency equipment, snow removal and street maintenance equipment; stormwater drainage; and sewage disposal.

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- f. Layout shall be designed to accommodate the prospective traffic and so arranged as to separate through traffic from neighborhood traffic insofar, as is practicable.
 - g. The streets in contiguous subdivision shall be coordinated so as to compose a convenient system. Where a subdivision adjoins undeveloped land, its streets shall be laid out so as to provide suitable future street connections with the adjoining land when the latter shall be subdivided. A street thus temporarily dead-ended shall be constructed to the property line and shall be provided with a temporary turnaround of the same dimensions as for permanent dead-end streets if in excess of two hundred (200) feet, with a notation on the subdivision plat providing for temporary easements for the turnaround until such time as the street is extended. These same requirements shall apply at the discretion of the Planning Board in those cases where the adjoining land is another section of the same subdivision, and which is not scheduled for development at the same time.
 - h. Streets shall be logically related to the topography, and all streets shall be arranged so as to obtain as many as possible of the building sites at or above the grades of the streets. Grades of streets shall conform as closely as possible to the original topography. A combination of steep grades and sharp curves shall be avoided.
 - i. Where a development abuts on or contains an existing or proposed arterial street or other existing village, town, county or state highway, the Planning Board may require marginal access streets reverse frontage with screen planting contained in a nonaccess reservation along the rear property line, deep lots with or without rear service alleys, or such other treatment as may be necessary for adequate protection of residential properties and to afford separation of through and local traffic.
 - j. Where a subdivision adjoins an existing street which does not conform to the right-of-way standards given in the table entitled "Standards for Street Design" in these guidelines, the Developer shall dedicate whatever additional right-of-way width is necessary to provide, on the subdivision side of the normal street center line, a width which is equal to at least one-half (1/2) of the minimum standard width for the respective type of street.
 - k. Where a street does not extend to the boundary of the subdivision and its continuation is not needed for access to adjoining property, it shall be separated from such boundary by a distance sufficient to accommodate a lot meeting the requirements of the Zoning Ordinance.
 - l. Reserve strips of land shall not be left between the end of a proposed street and an adjacent piece of property. However, the Planning Board may require the reservation of an easement for pedestrian traffic or utilities.

- m. Acceleration and/or deceleration lanes may be required by the Village or other regulatory agencies along Primary or Major Thoroughfares at principal entrances to subdivisions or developments.

2. DESIGN

- a. All streets shall be designed and constructed to conform to the requirements set forth in the table entitled "Standards for Street Design" presented below.
- b. The typical section provided in this Part 5 - Standard Details shall be used for all roads, except pavement and right-of-way widths shall vary with type of use.
- c. Cul-de-sacs and dead-end streets shall not exceed 1,000 feet in length without specific approval of the Village Planning Board.

Standards for Street Design

Standard	Primary Street		Collector Street	Local Street
	Street	Street	Street	Street
Minimum width of right-of-way	60 feet	60 feet	60 feet	60 feet
Minimum Width of pavement	24 feet	22 feet	22 feet	20 feet (excluding gutter)
Minimum radius of horizontal curves ¹	500 feet	300 feet	300 feet	150 feet
Minimum length of tangents between horizontal curves	100 feet	100 feet	100 feet	100 feet
Minimum length of vertical curves ^{2,3}	Same as collector street	100 feet but in no case less than 20 feet for each 1% difference of grade	100 feet but in no case less than 20 feet for each 1% difference of grade	200 feet, but less than 30 feet for each 1% difference of grade
Maximum street grade	6.0%	6.0%	6.0%	8.0%
Minimum street grade	0.5%	0.5%	0.5%	0.5%
Maximum grade at intersections	1.0% within 50 feet of intersection 3.0% within 50' to 100' of intersection	1.5% 3.0%	1.0% 3.0%	1.0% 3.0%
Minimum sight distance ⁴	450 feet	225 feet	225 feet	150 feet

NOTES:

- 1. Radius of horizontal curves shall be measured to the center line of the street.
- 2. Vertical curves shall be provided for ALL changes in grade exceeding 1.0%.
- 3. Minimum length of vertical curves shall be designed based on the sight distance required for the

type of street or road.

4. Sight distance shall be measured between two (2) points along the center line of the street on a straight line entirely within the street right-of-way and clear of obstructions, one (1) of the points to be at the surface of the street and the other 42 inches above the surface.
 - d. Cul-de-sacs shall be designed to conform with the standards presented in Part 5 - Standard Details.
 - e. Dead-end streets shall have turn-a-rounds conforming with the standard detail presented in Part 5.
 - f. Temporary dead-end streets shall have temporary turn-a-rounds conforming to permanent turnarounds. Temporary easements, where required, shall be provided to the Village.
3. INTERSECTIONS - Street intersection design shall meet the following criteria:
 - a. Street intersections shall be at right angles where practical. In no case shall intersecting centerlines have angles less than 75°.
 - b. Intersections of arterial streets shall be held to a minimum and spaced at least one thousand (1,000) feet apart.
 - c. Intersections of collector streets by other streets shall be at least eight hundred (800) feet apart.
 - d. Cross (four-cornered) street intersections shall be avoided, except at intersections where both streets shall be at right angles and in no case shall the angle of intersection be less than seventy-five degrees (75°) without additional channelization.
 - e. Intersections of offset streets shall have a minimum of 200 feet between centerlines.
 - f. Sight distances shall be maintained within an area defined by the intersecting right-of-way lines and a sight line between points located 75 feet from the intersecting right-of-way lines. There shall be no structures or plantings within this triangular area.
 - g. Triangles, circles or other traffic-channeling islands may be required at intersections where present or anticipated traffic conditions indicate their advisability for traffic control or safety.
4. RADII
 - a. Minimum curb, gutter or edge of pavement radii shall depend on the intersecting street types; and shall be as follows:
 - (1) Collector with collector: thirty-five (35) feet.

(2) Minor with collector: thirty (30) feet.

(3) Minor with minor: thirty (30) feet.

b. Access streets into a subdivision or development from an arterial street shall have minimum curb, gutter or edge of pavement radii of forty (40) feet.

5. STREET GRADING AND SHOULDERS.

a. Areas within street rights-of-way shall be graded as necessary to eliminate any slopes steeper than 1-foot vertical on 3 feet of horizontal distance.

b. Street shoulders shall not exceed a slope of 10% at right angle to the street center line. Shoulders at least 8 feet wide shall be provided on both sides of collector streets.

c. Design of roadside swales steeper than 6.0%, or where soil conditions require, shall incorporate measures to control erosion.

I. SIDEWALKS 5' wide concrete sidewalks shall be provided in any locations where they are deemed by the Planning Board to be appropriate and in the interest of public safety or convenience.

At the discretion of the Planning Board, concrete sidewalks may be required along existing highways and/or along the frontage of the proposed subdivision. Also to maintain a continuous sidewalk system sidewalks may be required outside of the proposed project area to tie the existing sidewalk system to sidewalks of the proposed project.

J. LANDSCAPING

1. Developers shall take adequate measures to preserve existing trees in suitable locations within the development.

2. In general, the street right-of-way shall be cleared of existing trees and brush, but occasional existing trees of unusual value may be preserved within the street right-of-way if approved by the Planning Board and Village Superintendent.

3. Species and locations of proposed street trees shall be approved by the Village Superintendent. A minimum of one (1) tree shall be provided per new residential lot.

K. STREET NAMES

1. All streets shall be named, and such names shall be subject to the approval of the Village Board. Names shall be sufficiently different in sound and spelling from other street names in the municipality and post offices contiguous to the municipality so as not to cause confusion.

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2. Street names recommended to the Village Board shall have been approved by Monroe County 911 Program Office (pursuant to Resolution 366 of 1987). A copy of their approval shall be submitted to the Village Superintendent.
 3. A street, which is a continuation of an existing street, shall bear the same name.
 4. Relating street names to features of local historical, topographical or other natural Interest is encouraged.

L. STREET AND TRAFFIC SIGNS

1. Street signs shall be provided and installed by the Village of Churchville, and all costs incurred to be paid by the developer.

M. MONUMENTS

1. GENERAL

- a. Monument locations shall be shown on the subdivision plat. Field notes of 3 tie point to monuments from fixed structures or a tie sheet shall be submitted to the Engineer for the Village after installation of monuments. Ties shall be measured by a licensed land surveyor or engineer.
- b. Monuments shall be tied into the New York State Coordinate System where practical in the opinion of the Village Superintendent or Engineer for the Village.

2. RIGHT-OF-WAY

- a. Permanent survey monuments shall be set along the right-of-way at intersecting streets. Monuments shall be placed on one side of the street and at one corner of intersecting streets.
- b. Points of Curvature (PC) and Points of Tangency (PT) of horizontal curves shall be monumented.
- c. The Point of Intersection (PI) of short curves may be used where practical, at the discretion of the Village Superintendent and/or the Municipal Engineer for the Village.
- d. Adjacent monumented points shall be intervisible
- e. Street or right-of-way monuments shall be of stone or concrete and not less than four (4) inches in diameter or square, and not less than forty-two (42) inches long or from the top of underlying rock. Concrete monuments shall be reinforced with steel rods, and a plug, brass plate or pin shall serve as the point of reference. If stone, a drilled hole shall serve as the point of reference and a magnetic rod or other suitable metal shall be placed adjacent to the monument to allow for recovery.

3. LOTS

- a. Permanent markers shall be provided for all property corners of each lot, and shall be in place upon completion of final grading of the lot.
- b. During construction lots may be staked with wood hubs. After construction, permanent markers shall be provided for all property corners of each lot, and shall be in place immediately following completion of final grading of the lot.
- c. Property markers shall be ¾ inch diameter solid steel rod, a minimum of 36 inches long, with the top of the rod ¼ - ½ inch below finished grade.

N. DRIVEWAY DESIGN REQUIREMENTS

1. Design and location of driveways shall be in accordance with applicable requirements of NYS DOT *Policy and Standards for Entrances to State Highways*. These standards shall apply to driveways entering on State and Village roads.
2. Driveways entering upon county roads shall be designed and constructed in accordance with requirements of Monroe County Department of Transportation and the conditions of the appropriate curb cut permit.
3. Highway curb-cut permits will be required for construction of driveways on State, County or Village roads. The Developer shall make application to the appropriate agency and provide the required information.
4. Driveways in all new subdivisions shall be paved from the proposed gutter line to a point 4' outside of the new street right-of-way. Pavement section for proposed driveways shall be a minimum of 2" of dense binder and 1" of top course. Finish driveway pavements shall match sidewalk and gutter grades to allow for positive drainage.

O. STREET LIGHTING

1. Developers of residential subdivisions, commercial, and industrial developments with dedicated roads shall petition the Village Board for street lighting. All costs of installation and materials to be paid by the developer.
2. Street lighting shall be provided, with light fixtures spaced approximately 120 feet apart. Lighting shall be arranged to ensure there is lighting at intersections.
3. Lighting fixtures are to be installed by the Village Department of Public Works. They will be owned and maintained by the Village of Churchville.
4. Developer shall provide lighting plans for lighting in private areas to the Planning Board as part of the approval process.

P. MAILBOXES

1. Mailboxes shall be in a minimum combination of two (2) whenever possible. Mailboxes shall be set on one side of street. Developer shall contact the U.S. Post

Office to determine the desired side of street and locations, Mailbox locations to be shown on the site plan.

Part IV

CONSTRUCTION STANDARDS

IV. CONSTRUCTION STANDARDS

The purpose of this Part is to assure that facilities which are to be turned over to the Village of Churchville shall be so constructed as to cause a minimum of maintenance and a maximum of benefit to the public. They shall, therefore, be strictly adhered to. Failure of the Developer, Contractor, their agents, employees or subcontractors to comply shall be considered sufficient cause by the Village to not accept the facilities or any portion thereof for dedication until all work is satisfactory.

A. GENERAL

1. **PRE-CONSTRUCTION MEETING** - A pre-construction meeting shall be held **PRIOR** to the start of construction to review Village of Churchville requirements and to establish project schedules. Attendees shall include, but not be limited to those agencies listed in section PART II A, item 24.
2. **PERMITS** - Prior to the commencement of any activity, the Developer shall obtain and comply with all necessary permits from any authority having jurisdiction over the intended work activity. A copy of any approved permit shall be provided to the Village Superintendent.
3. **SAFEGUARDING EXISTING UTILITIES, OTHER PROPERTY, AND PERSONS**
 - a. The Developer, or his Contractor, where work and responsibility has been so delegated, shall locate all existing sewers, water mains, underground conduits, gas mains or other utilities in the work area prior to commencing operations. Appropriate utility officials shall receive prior notice of intent to start construction, and their recommendations and orders shall be followed. Existing utilities and facilities shall be protected as directed by the owner of such utility or facility.
 - b. Developer shall ensure that the Contractor notifies all utilities and the Underground Facilities Protective Organization, Inc. (phone 1-800-962-7962) 48 hours **PRIOR** to the start of any excavation.
 - c. Any damage done to any utility or facility shall be repaired at the Developer's expense in a manner acceptable to the owner of such utility or facility.
 - d. Care shall be taken to protect persons and property, as well as to avoid potentially hazardous conditions or nuisances.
 - e. Adequate flaggers, traffic control devices, signs, barricades, lights, and other safety measures shall be provided by the Developer for traffic control, safety, and protection of the public.
4. **OSHA** - The Developer and his Contractor shall comply with all stipulations of the Occupational Safety and Health Act of 1970 and all revisions and amendments thereto.

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5. NOTICE TO PROCEED - Site preparation, grading, or construction of facilities SHALL NOT begin until:
- a. plans have been approved by all involved agencies; and
 - b. proper financial security has been filed with the Village ; and
 - c. a NOTICE TO PROCEED has been issued by the appropriate Village Official.

6. RESPONSIBILITY FOR WORK

- a. The Developer is solely responsible for proper construction of all facilities. It will normally be of benefit to both the Developer and the Village to have Churchville representatives deal directly with the Developer's Contractors where such are employed, both as a matter of expediency and to avoid needless liaison. However, such action shall not be construed as relieving the Developer of his prime responsibility to the Village .
- b. Acceptance for dedication shall not take place until all construction of dedicated facilities is fully completed by the Developer, and found to be satisfactory to the Village .

7. CONSTRUCTION OBSERVATION

- a. All construction shall, at all times, be subject to observation by the Village Board, its agents, representatives and authorized employees.
- b. Access to the site shall be provided by the Developer or Contractor at all stages of the work for such observation.
- c. Such observers may stop the work when the Developer or his Contractor has no competent foreman in charge of the work or when the work or material does not meet these Development Guidelines and generally accepted standards or when circumstances are such that continuance of that particular phase of the work would not be in the best interests of the public.
- d. Costs incurred for construction observation services for dedicated and municipal related facilities shall be borne by the Developer, and sufficient funds shall be included as part of the financial security.

Failure of the Village Superintendent, the Engineer for the Village, their agents, employees or representatives, to reject improper work or inferior material during construction shall not be construed as, nor imply, final acceptance.

- f. If subsequent inspection, operation or circumstances cause defects to become evident, the Developer shall make or cause to be made such cuts or other

exposures of the work as may be required to determine cause of such defects. Such defects shall then be corrected to the satisfaction of the Village at the expense of the Developer.

8. LAYOUT OF WORK

- a. The Developer is responsible for layout of all work on the project.
- b. All work shall be staked-out by experienced surveying personnel in accordance with the approved plans. Stake-out shall be in sufficient detail to provide correct horizontal locations and elevations of structures, pipes, roads and grading.
- c. Stake-out shall be performed as the work progresses. Any stake-out that is disturbed shall be re-staked before continuing with the work.

9. **SHOP DRAWINGS** - When required by Village officials, the Developer or Contractor shall submit to the Design Professional shop drawings or cut sheets for all materials to be incorporated into the facilities to be dedicated. Upon confirming that the proposed material conforms to the approved plans and Village standards, the Design Professional shall forward signed copies of such shop drawings to the Contractor and Engineer for the Village prior to construction.

10. PROTECTION OF INCOMPLETE WORK

- a. Where work is left incomplete because of weather, or other reasons, it shall be protected. Road beds shall be left well-drained, sanitary sewers (and storm drains where applicable) shall be so protected that surface water, mud, silt and debris cannot enter. Sewer laterals, water services and valves shall be suitably marked with stakes and shall be protected.
 - b. Where pavement base courses or subgrades are left unfinished during the winter, they shall be restaked in the spring and regraded accordingly.
11. **TRAFFIC CONTROL** - Proper signs, barricades, lights, flaggers, and signal lights required by the authority having jurisdiction over construction activities in public rights-of-way or easements shall be provided by the Developer, or Contractor, to protect the health, safety, and welfare of the public.

12. NOISE CONTROL

- a. Construction equipment and vehicles shall be maintained by the Contractor in good working order to control noise and exhaust emissions.
- b. Normal **construction activities shall be restricted to the hours of 7:00 AM to 7:00 PM.** Special permission must be obtained from the Village Superintendent for activities that require operation beyond the restricted hours.
- c. Restricted activities include starting up and moving of construction equipment.

13. WEATHER CONDITIONS

- a. Work shall be suspended during unsuitable weather conditions. All necessary precautions shall be taken by the Contractor to protect all Work, material, and equipment from damage or deterioration.
- b. Mixing and placing of concrete, the construction of pavements, gutters, and sidewalks, laying of masonry, and the installation of sewers and water mains shall be stopped during rain or other unsuitable weather, unless the proper protection is in place.
- c. Newly placed concrete and masonry shall be protected by the appropriate covering to prevent damage from inclement weather.

14. FULL COMPLETION OF WORK AND CLEANUP

- a. Prior to acceptance of the utilities by the Village of Churchville, the Developer shall fully complete the work and leave the site in a neat and orderly condition.
- b. Slopes, drainage ways and other graded areas shall be fully stabilized by planting grass or other vegetation or by such means acceptable to the Village.
- c. Grading between adjacent lots, as well as between lots and the street area, shall have a continuity without abrupt changes in elevation or unfinished ground surface.
- d. All areas shall be so graded that run-off from higher-elevation lots does not create a nuisance on lower-elevation lots. To this extent, lots shall normally be graded to drain front-and-back with street gutters taking the front drainage and shallow swales taking the back-lot-line drainage.
- e. Valve boxes, manhole covers and curb boxes shall be left at proposed finish elevation.

15. RECORD DRAWINGS

- a. Prior to acceptance of the utilities by the Village, the Developer shall submit a Record Plan, certified by the Design Professional.
- b. This plan shall be drawn to scale and shall indicate, by dimensions, angles, distances, and elevations, as applicable, the location of sewer and drain wye-branches, laterals, manholes, catch basins, hydrants, valves, curb shutoffs, road profiles and center-line elevations and a final grading plan showing swales and ditches. The plan shall show easements and dedicated roadways.
- c. Developer shall submit 6 prints and a reproducible polyester film copy of the record plans, after review by the Engineer for the Village .

16. WARRANTY OF WORK AND MATERIALS

- a. The Developer shall warrant all work performed and materials furnished against defect, failure, inadequacy or breakage for a **period of two (2) years** from the date of final acceptance of the work by the Village Board.
- b. In the event of a defect, failure, inadequacy or breakage during said warranty period, the Developer shall make the necessary repairs or replacements within two (2) days of the mailing of written notice by the Village .
- c. Money or bonds for warranty shall be deposited with the Village Clerk, after review and approval by the Village Attorney and Engineer for the Village, prior to the acceptance of the work.
- d. The amount of warranty bond shall be ten percent (10%) of the actual construction cost.
- e. Should the Developer fail, neglect or refuse to so comply within the specified time, the Village can make the necessary repairs or replacements, for the account of the Developer, and deduct all costs from the moneys or securities being held by the Village to ensure compliance during the warranty period.

17. STAKE-OUT COLOR CODES - The following color codes shall be used for stakeout of various utilities:

Yellow Gas, oil, petroleum products, steam, compressed air, compressed gases, and all other hazardous liquid or gas.

Red Electric lines

Orange Communication lines; including telephone, telegraph, fire signal, cable TV, civil defense, data systems, electronic controls, fiber optic, etc.

Blue Water.

Green Sanitary sewers including force mains.

White Storm sewers.

B. EROSION AND SILTATION CONTROL

1. Construct temporary erosion and siltation control facilities before starting excavation and grading. Before starting construction of these facilities, submit to Engineer for the Village for review written description and details of the proposed erosion and siltation control facilities.

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2. Prevent direct discharge from dewatering pumps and surface runoff from the construction sites to storm sewers, culverts, streams or ditches. Intercept and conduct surface runoff and discharge from dewatering pumps to siltation ponds before discharging to natural drainage channels.
 3. Maintain temporary erosion and siltation control facilities during the construction period until final grading, landscaping and permanent erosion control are completed. At that time, remove the temporary facilities, after obtaining authorization from the Engineer for the Village, and complete the site work as specified.
 4. Effective implementation of erosion and sediment controls requires good construction management. Proper management can reduce the need for maintenance of structural controls, regrading of severely eroded areas, and reconstruction of controls that were improperly implemented. Good site management results in efficient use of manpower and financial savings.
 5. Site management for effective implementation of erosion and sediment controls involves the following:
 - a. Clear only what is required for immediate construction activity. Large projects should be cleared and graded as construction progresses. Mass clearing and grading of the entire site should be avoided.
 - b. Restabilize disturbed areas as soon as possible after construction is completed. Certain sections of large construction projects may be completed before others and be ready for stabilization before the total project is completed. Waiting until the end of the project to commence all site stabilization may leave areas exposed for an unnecessarily long duration.
 - c. Divert offsite runoff from highly erodible soils and steep slopes and convey to stable areas.
 - d. Physically mark off limits of land disturbance on the site with tape, signs, or other methods, so the workers can see areas to be protected.
 - e. Make sure that all workers understand the major provisions of the erosion and sediment control plan.
 - f. Designate responsibility for implementing the erosion and sediment control plan to one individual.
 - g. Implement a daily inspection program to determine when erosion and sediment control measures need maintenance or repair. Pay particular attention to the inspection following rainfall events.

C. CLEARING & GRUBBING

1. GENERAL - Site preparation consists of clearing and grubbing, topsoil removal and

stockpiling, protection of existing facilities, providing temporary access, erosion and siltation control, and related work.

2. CLEARING AND GRUBBING

- a. Clear and grub all areas of excavations, trenches, embankments, and areas to be graded by removing all trees, stumps, roots, brush and debris within the limits indicated on the drawings. All trees, shrubs and vegetation that are not to be removed shall be protected and preserved.
- b. Arrange for disposal of clearing and grubbing materials satisfactory to the New York State Department of Environmental Conservation and the Village . Burning of debris in the work areas is not permitted.
- c. All work shall be in accordance with applicable requirements of NYS DOT 201 - Clearing and Grubbing.

3. TOPSOIL REMOVAL AND STOCKPILING - Remove and stockpile topsoil from areas to be excavated and graded. Topsoil shall not be removed from the project site, but shall be retained until it is used in landscaping of project sites. Excess topsoil may be removed and used following applicable regulatory guidelines.

4. TEMPORARY ACCESS

- a. Provide and maintain temporary parking areas and access roads to project sites for use by all Contractors on this project, and for delivery of materials.
- b. Maintain the temporary roads and parking areas in serviceable condition until the permanent roads are completed.
- c. Mud pads shall be constructed at all construction entrances where deleterious material may be tracked onto public highways.
- d. Material used for mud pads shall not be used as road subgrade or subbase.

E. EARTHWORK

1. **SITE CONDITIONS** - The Developer shall generally maintain his development or construction site in a neat and nuisance-free condition. Cellar excavations and trenches shall not be left open for prolonged periods or be allowed to fill with water and thereby create a hazard.
2. **SIDE SLOPES** - Where open storm drainage ditches or swales are constructed, the side slopes and bottom shall be neatly graded and left in a clean condition. Side slopes shall be topsoiled and seeded with perennial rye grass.
3. **STOCKPILING** - Vacant, unsold lots shall not be used as a depository for scrap lumber, excess earth, or trash. Earthen material may be stockpiled if properly graded and seeded.

4. GRADING

- a. Site grading shall be completed to within one (1) foot of finished grades and contours shown on the grading plan before starting any trench excavation, and shall include grading of lots, drainage channels, detention ponds, temporary siltation ponds, and roadways.
- b. Graded areas shall be relatively smooth and free of ruts, depressions or mounds, and shall be graded for proper drainage.

5. **SEPARATION OF BACKFILL MATERIAL** - Excavated material which is suitable for backfill shall be separated from earth excavation which is unsuitable for backfill and rock, boulders, frozen earth, paving materials, concrete, and stones larger than 8 inches in their greatest dimension. These materials which are not to be used for backfill shall be hauled away and properly disposed of at a site to be arranged for by the Contractor.

6. **DEWATERING** - Excavations shall be dewatered so that structures are not installed in water. The Contractor shall provide pumping equipment and other methods for dewatering. The discharge from dewatering equipment shall be conducted to sedimentation basins and silt traps before discharging to natural drainage channels, gutters, drains, or storm sewers. Surface water shall be diverted or otherwise prevented from entering excavations and to prevent damage to adjacent property.

Water shall not be allowed to soften the bottom of the excavation. If the bottom becomes soft due to failure to keep the excavation dry, the softened material shall be removed and replaced with crushed stone.

7. EMBANKMENTS

- a. Backfill and embankments consist of placing and compacting backfill material in trenches and around structures, and construction of embankments and fills, including maintenance of backfilled surfaces, disposal of excess excavated material, and related work, and shall generally conform to applicable requirements of NYSDOT 203.
- b. Embankments and fills shall be completed before installation of piping and appurtenances is started.
- c. In general, construct fills and backfill trenches with excavated material provided that the excavated material is suitable in the opinion of the Engineer. Where there is a deficiency of excavated material due to the rejection of a part thereof, excess excavated material from other portions of the project may be used if acceptable.
- d. Granular fill shall be used for backfill, where directed by the Engineer or where there is a deficiency of suitable or select excavated material. on the project.

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- e. Construct fills and embankments using select excavated material within 2 feet of finished grade, and suitable excavated material below depths of 2 feet within finished grade. Place and compact fill material in layers not to exceed 12 inches and as specified under compaction requirements.
 - f. Rework embankment and fill that does not conform to these specifications to meet the requirements, or remove and replace the material with acceptable fill. Compact all fill material placed before the end of each work day. Grade the final layer placed each day for proper drainage to prevent ponding of surface run-off on the fill.

F. STORM SEWERS

- 1. **GENERAL** - All storm sewer, appurtenances, and related work shall conform to the provisions and specifications contained below.
- 2. **MATERIALS** - All materials used in the work shall meet the requirements as specified, unless the same is altered by specific requirements under any itemized specification or by modifying notes shown upon the plans and approved by the Village . In the absence of any specific reference to specifications, the material to be incorporated into any project, and the work to be performed are intended to conform to the latest version of New York State Department of Transportation Standard Specifications, as determined by the Engineer for the Village .

a. **Storm sewer pipe shall be:**

REINFORCED CONCRETE PIPE (RCP) shall be class IVP reinforced concrete pipe conforming to NYS DOT 706-02, wall B minimum, ball and spigot type joints with elastomeric gaskets.

or

CORRUGATED POLYETHYLENE PIPE (HDPE) shall be high density corrugated polyethylene smooth interior pipe, conforming to the latest AASHTO specification of M 294 Type S or SP, and meeting ASTM D 3350 minimum standards.

or

POLYVINYL CHLORIDE PIPE (PVC) shall be SDR-35 conforming to ASTM D3034 with elastomeric gasket joints.

- b. **Manholes** shall be precast reinforced concrete manhole units conforming to NYS DOT 706-04 specifications for circular units, meeting ASTM C-478.
- c. **Manhole steps** shall be aluminum alloy 6061-T6, forged from a solid extruded

section as manufactured Aluminum Company of America (part No. 12653A) or approved equal.

- d. **Manhole covers and frames** shall be # R-1653-D, Manhole Frame, Solid Lid, as manufactured by Neenah Foundry Company or approved equal, with minimum 24" diameter opening.

 - e. **Precast catchbasins** shall be shall be four thousand (4,000) pounds per square inch, air-entrained concrete, five-inch reinforced walls, six-inch reinforced base as manufactured by Warren Concrete Products, Inc., or approved equal. Catch basins shall be precast with four-inch drain pipe on 3 sides as shown on the Standard Detail.

 - f. **Inlet grates and frames** shall be rectangular, welded galvanized steel, supplied with locking devices conforming to NYS DOT 655-2.02, Type 'A' (No. 9) Frame 2'-4 15/16" x 2'-3 1/2", Grate 2'-3 11/16" x 2'-2 1/2".

 - g. **Concrete** shall be Class A Portland Cement concrete conforming to NYS DOT 501-1, 501-2, and 501-3.

 - h. **Concrete curing compound** shall be liquid membrane-forming conforming to ASTM C-309.

 - i. **Concrete cradle** shall be Portland Cement Concrete, class B, 2 inch minimum slump meeting NYS DOT 501-2.

 - j. **Crushed stone cradle** shall be No. 2 limestone meeting NYSDOT 703-02.

 - k. **Mortar** shall conform to ASTM C-270, Type M. Mix volume shall be 1 part Portland Cement, 1 part masonry cement, and 5 parts mortar sand. Lime shall not be used in the mix.

 - l. **Dampproofing** shall be two coats (3.6 mil thick wet each) of tar based paint.
3. **WORK** - The work consists of the construction of the storm sewers including the furnishing and installing all pipe, fittings, materials, and appurtenances; the proper bedding and compaction around the pipe; all excavation and backfill, and restoration of the area.
4. **STORM SEWER INSTALLATION**
- a. **HANDLING PIPE** - All pipe and fittings shall be handled carefully. Pipe shall be carefully unloaded from the trucks using hogging lines and planks or shall be

removed by use of slings and power equipment. No pipe shall be allowed to roll off the truck onto the ground, nor shall it be removed by any method which might induce shock loading on it. pipe shall not be pushed along the ground by power equipment.

- b. **STOCKPILING** - The Contractor shall take all necessary precautions to ensure stability of any stockpile or individual lengths of pipe that is stored. Pipe placed along a road or sidewalk shall be placed such that it does not create a safety hazard or impair free flow of traffic.
- c. **TRENCH EXCAVATION**
 - (1) Trenches shall be excavated as narrow as possible in accordance with good design and construction practice. In no case shall trench widths be greater than the outside diameter of the pipe plus 12 inches on each side of it.
 - (2) Trenches shall be excavated only so far in advance of pipe laying necessary for installation of the pipe and to comply with access requirements.
 - (3) Where necessary, sheeting and/or bracing shall be used to provide support and stability to the trench walls.
 - (4) Unless otherwise directed, sheeting and bracing shall be removed as the trenches are backfilled.
 - (5) The use of a trench shield will be permitted if adequate provisions are made for preventing movement of the pipe and caving-in of the banks when the shield is repositioned. The use of a bar by a worker shall not be considered as adequate.
 - (6) The methods to maintain the stability of banks must be in accordance with applicable laws, rules, and regulations, and are the sole responsibility of the Contractor.
 - (7) Excavated material from the trench that is unsuitable as backfill shall be removed from the site as it is dug up and properly disposed of.
 - (8) Suitable backfill material shall be placed in spoil banks located on one side of the trench and at least 2 feet away from the excavation wall. spoil banks shall not be placed where they will interfere with the work or contribute to an overload of the walls of the excavation.
 - (9) If encountered, rock may be loosened with the use of explosives or other materials after review by the Engineer for the Village . The

Contractor must take proper precautions to protect property and the public. Blasting operations shall be carried out only by properly trained, experienced, certified personnel. All permits and insurance necessary for blasting operations shall be obtained by the Contractor and copies provided to the Village .

- (10) Restitution, repair, or replacement of any damages resulting from rock excavation shall be the responsibility of the Contractor.
- (11) Rock, boulders and large stones shall be removed from the trench to provide a minimum clearance of 6 inches below and each side of all pipes. A minimum of 1 1/2 feet shall be provided around all structures.

d. PIPE INSTALLATION

- (1) All pipe shall be laid true to line and grade with bells upstream and shall have a full, firm and even bearing. Boulders or other natural obstructions shall not be considered cause for varying from true line and grade.
- (2) The Contractor shall maintain line and grade of the storm sewer by use of batter boards or sewer laser.
 - (a) **BATTER BOARDS** or parallel string lines shall be set prior to laying the pipe. They shall be spaced no greater than 50 feet intervals. The pipe shall be set carefully to line and grade using a grade pole. A string line shall be set at least 150 feet (over at least 3 grade stakes) alongside the trench preceding the pipe laying operation to assist the excavator operator and guard against errors in grade stakes.
 - (b) In using an industrial laser specifically made for pipe laying operations, the Contractor shall closely follow all manufacturer's instructions and recommendations with regard to maintaining accuracy. (Normally no more than 300 feet of pipe is laid from the laser setup and fans are used to circulate air through the pipe to maintain a constant temperature).
 - (c) In any case, line and grade shall be periodically checked using a transit or preestablished grade.
- (3) When setting pipe, the workmanship and tools used shall be such that the quality and strength of the pipe is not impaired.
- (4) **JOINTS**
 - (a) The joint surfaces of all pipes and fittings shall be clean, and shall fit together to form a tight joint.

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- (b) Joints shall be made up following pipe manufacturer's recommendations and specifications.
- (5) **BEDDING**
- (a) Where pipe is installed on native earth, the trench bottom shall be bedded as specified in Part V - Standard Details and Drawings.
 - (b) Low areas shall be filled with suitable crushed stone.
 - (c) Where rock in either ledge or boulder formation is encountered, it shall be removed below grade and replaced with suitable sand or crushed stone as shown on the construction details at the rear of this chapter.
 - (d) Where a firm foundation is not encountered at the grade established due to soft, spongy or other unstable soil, (unless other special construction methods are called for on the plans) all such unstable soil, under the pipe and for a width of at least 1 foot diameter on each side of the pipe, shall be removed and replaced with suitable crushed stone or other approved suitable material properly compacted to provide adequate support for the pipe line.
 - (e) Storm sewers shall be constructed using crushed stone bedding as specified shown in the detailed drawings.
 - (f) Sidefill - Earth shall be added, by hand, and tamped alongside the pipe until the top of the pipe is reached. The hand backfill shall follow closely behind pipe laying to prevent damage to or movement of the pipe by cave in of the trench walls. Pipe tamps and flat-bottomed tamps shall be used for this operation.
 - (g) Safety cover - When the top of the pipe is reached, an additional 12 inches of earth shall be placed over the pipe by hand. The material shall be free from stones or rocks.
 - (h) Backfill. Following the hand operation, backfill may be machine placed, provided that extreme care is used. Backfill shall be made to existing grade and left in a neat and uniform condition. Excess earth shall be windrowed over the trench area. Where the trench passed under a ditch, stream, swale or drainageway, the backfill shall be left in such a manner as to allow proper drainage as well as duplicate conditions as they existed prior to construction. The surface must be entirely free from lumps of earth, stones and debris. Adjacent roadways shall be swept

clean of all rubbish and flushed with water if necessary. Shoulders of highways which have been cut shall be carefully shaped and consolidated by tamping or rolling.

- (i) No rock shall be placed in the trench. Small boulders (9 inches or smaller) may be placed back into the trench, above the safety cover.

- (6) CRADLE - Where called for on the plans or as ordered by the Village to meet field conditions, pipe shall be installed on cradles. The Engineer for the Village will determine, at the time of construction, whether a dry or plastic mix will be used at any particular location depending upon trench conditions. The cradle shall be constructed of one-to-two-and-one-half-to-five concrete, using commercial Type 1 portland cement and clean, hard aggregate. Cradle material shall be placed to the width shown on the plans, or as ordered by the Municipal Engineer, and to an elevation $\frac{1}{3}$ up the side of the pipe. The pipe shall be laid in a channel formed in the material by means of a round-pointed shovel. High points and low spots shall be corrected and the pipe firmly bedded to line and grade and jointed. Additional cradle material shall then be added and tamped along the haunches of the pipe and subsequently shaped to the top of the pipe as shown on the Detail. A safety cover of 12 inches of earth shall then be placed and backfill made as required above.

5. MANHOLES

- a. Precast manholes shall not be shipped or handled until the concrete is completely cured. Any damage that occurs during shipping or handling shall be cause for rejection.

- b. Manhole sections shall be inspected before unloading and any sections that have been damaged or do not meet specifications shall not be unloaded.

- c. Manholes shall be set on concrete cradle as detailed in Part V.

- d. All pipe openings shall be preformed during manhole manufacture.

- e. Openings and lifting holes shall be completely filled with non-shrinking grout, and after initial set, waterproofed on the outside with 2 coats of dampproofing.

- f. Joints shall be sealed immediately upon setting the manhole and coated with 2 coats of dampproofing.

- g. BENCHES AND INVERTS - shall be formed using $\frac{1}{2}$ section of PVC pipe of equivalent diameter of sewer to the inside diameter of the adjacent storm sewer pipe. Changes in size and grade shall be made gradually and evenly. Changes in direction of the sewer and entering branches shall have a radius of

1/2 of the inside diameter of the manhole.

- h. Grade rings shall be used to bring the manhole cover and frame to an elevation of 1/4 inch below finished grade in paved areas, and to meet finished grade in other area. Maximum height of grade rings shall not exceed 8 inches.
 - i. Frames for covers shall be set in a full bed of mortar.
6. **LATERALS**
- a. Laterals shall be constructed with the same care as street sewers.
 - b. Stormwater laterals (where required) shall be 6 inches in diameter and shall be installed on a minimum slope of one-eighth (1/8) inch per foot.
 - c. The pipe used for laterals shall have a joint specifically made to fit the bell on the Y-branch of the street sewer.
 - d. Laterals shall be firmly bedded in the same crushed stone bedding required for storm sewers.
 - e. They shall be laid true to line and grade, and the bedding material shall be tamped under the pipe and alongside the haunches to provide full bedding and lateral support for the entire length of the pipe.
 - f. The interior of each pipe shall be cleaned before adding the next length of pipe.
 - g. Laterals shall be installed at depths not greater than 10 feet.
 - h. Use shall be made of concrete-encased riser pipes from the deep storm sewer to the ten-foot level to accomplish this method of construction.
 - i. The connection to the trunk sewer shall be made using a Y-branch and elbow, encased in concrete and appropriate saddle slant.
 - j. The ends of all laterals shall be plugged to prevent entry of dirt, soil or other deleterious material.
 - k. It shall be marked with a two-by-four-inch witness stake extending from the pipe to a point four (4) feet above the ground. The top of the witness stake shall be painted White to indicate storm sewer. A record shall be kept of the location of all laterals, and this information shall be included on the record plans
7. **CATCHBASINS**
- a. Catch basins shall be pre-cast see Appendix: ST-4.
 - b. Two (2) feet, plus or minus, off the catch basin foundation, four-inch-diameter

farm tile (clay tile) shall be installed through the wall as shown on Catch Basin Detail.

- c. The blocks shall be built to a height to allow for eight (8) inches of concrete cap between the last row of blocks and the bottom of frame and grate as part of the concrete apron.
 - d. Before pouring the concrete apron, the frame shall be adjusted on catch basin wall to allow a one-and-one-half-inch drop from invert of gutter to top of grate (except under special conditions). This drop shall be formed gradually in the invert.
 - e. The catch basin shall be provided with No. 1 and No. 2 crushed stone around the exterior, extending from the bottom of the catch basin to the top of the masonry wall on a two-on-one slope. This stone shall be compacted before pouring of the concrete apron.
 - f. The inside of the catch basin shall be sprayed with same solution as used on the gutter.
 - g. The lateral pipe leading from the catch basin to the storm manhole shall be encased on No. 1 and No. 2 crushed stone and extending to the top of the trench. This pipe shall be perforated PVC or HDPE.
8. **CONFLICTING PIPE LINES AND OTHER UTILITIES** - No existing pipeline, conduit, cable, poke, guy wire or other utilities or portion thereof shall be moved without the consent of the agency operating such utility. Any necessary changes in line and grade of the new pipe line shall be made only with the consent of the Superintendent of Public Works and the Municipal Engineer.
9. **CONSTRUCTION UNDER ADVERSE CONDITIONS** - No pipe shall be laid during adverse weather conditions. In no case shall pipe be laid in water. In cases where sewers are being installed in wet conditions or below the groundwater table so that installed pipes become submerged overnight, sufficient backfill shall be placed to prevent the pipe becoming buoyant.
10. **PROTECTION OF NEW WORK** - At the end of each working day (or any other time of work stoppage), the upstream end of the pipe shall be tightly plugged to prevent entrance of mud, silt or muddy water.
11. **PROTECTION OF EXISTING FACILITIES** - Care shall be taken at all times to avoid entrance of mud and water to existing sewers. When connecting to an existing manhole, the connection shall be tightly plugged until completion of the work. At that

time, the plug shall be removed and the accumulated water and mud pumped out of the manhole under the supervision of the Municipal Engineer. The cost of any necessary cleaning or flushing of existing facilities caused by failure to comply with this specification or for other reasons will be borne by the Developer.

12. TESTING

- a. **GENERAL** - All storm sewer pipes and appurtenances shall be cleaned by flushing or mechanical methods.
- b. **VISUAL** - A visual inspection of each section of completed sewer shall be made for smoothness of invert, freedom from obstructions, and straightness of line. The sewer shall be substantially watertight and free from infiltration. The Contractor shall remove and replace manhole covers for these inspections.
- c. **DEFLECTION TEST**
 - (1) Deflection tests shall be performed on all flexible pipe.
 - (2) The test shall not be conducted until the final backfill has been in place for at least 30 days.
 - (3) If a rigid ball or mandrel is used for the test, it shall have a diameter equal to 95% of the inside diameter of the pipe.
 - (4) Deflection tests shall be performed without the use of mechanical pulling devices.
 - (5) No pipe shall be accepted if deflection exceeds 5%.

G. SANITARY SEWAGE FACILITIES

1. **GENERAL** - All sanitary sewer, appurtenances, and related work shall conform to the provisions and specifications contained below.
2. **MATERIALS** - All materials used in the work shall meet the requirements as specified, unless the same is altered by specific requirements under any itemized specification or by modifying notes shown upon the plans and approved by the Village. In the absence of any specific reference to specifications, the material to be incorporated into any project, and the work to be performed are intended to conform to the latest version of *Monroe County Pure Waters Requirements for Privately Constructed Sanitary Sewers in County Sewer Districts*, as determined by the Engineer for the Village.
 - a. **Sanitary sewer pipe** shall be:
 - (1) **POLYVINYL CHLORIDE PIPE (PVC)** shall be SDR-35 wall thickness with integral wall, bell and spigot rubber ring joints

Lateral pipe shall be as noted below, or approved equal:

- POLYVINYL CHLORIDE PIPE (PVC)** shall be SDR-35 wall thickness with integral wall, bell and spigot rubber ring joints
- (2) **Extra-heavy cast iron soil pipe** meeting current commercial standards CS-188. It shall be thoroughly coated inside and outside with coal tar pitch or similar nonbrittle protective coating. Joints shall be slip-seal with rubber rings.
 - c. **Manholes** shall be precast reinforced concrete manhole units conforming to NYS DOT 706-04 specifications for circular units, meeting ASTM C-478. (see detail SA-4 & SA-5)
 - d. **Manhole steps** shall be # R-1981-N, as manufactured by Neenah Foundry Company or approved equal.
 - e. **Frames and covers** shall be # R-1653-D, Manhole Frame, Solid Lid, as manufactured by Neenah Foundry Company or approved equal.
 - f. **Concrete cradle** shall be Portland Cement Concrete, class B, 2 inch minimum slump meeting NYS DOT 501-2.
 - g. **Dampproofing** shall be two coats (3.6 mil thick wet each) of tar based paint.
3. **WORK** - The work consists of the construction of the sanitary sewers including the furnishing and installing all pipe, fittings, materials, and appurtenances; the proper bedding and compaction around the pipe; all excavation and backfill, and restoration of the area.
4. **SANITARY SEWER INSTALLATION**
- a. **HANDLING PIPE** - All pipe and fittings shall be handled carefully. Pipe shall be carefully unloaded from the trucks using hogging lines and planks or shall be removed by use of slings and power equipment. No pipe shall be allowed to roll off the truck onto the ground, nor shall it be removed by any method which might induce shock loading on it. pipe shall not be pushed along the ground by power equipment.
 - b. **STOCKPILING** - The Contractor shall take all necessary precautions to ensure stability of any stockpile or individual lengths of pipe that is stored. Pipe placed along a road or sidewalk shall be placed such that it does not create a safety hazard or impair free flow of traffic.
 - c. **TRENCH EXCAVATION**

- (1) Trenches shall be excavated as narrow as possible in accordance with good design and construction practice. In no case shall trench widths be greater than the outside diameter of the pipe plus 12 inches on each side of it.
- (2) Where necessary, sheeting and/or bracing shall be used to provide support and stability to the trench walls.
- (3) Unless otherwise directed, sheeting and bracing shall be removed as the trenches are backfilled.
- (4) Excavated material from the trench that is unsuitable as backfill shall be removed from the site as it is dug up and properly disposed of.
- (5) Suitable backfill material shall be placed in spoil banks located on one side of the trench and at least 2 feet away from the excavation wall. spoil banks shall not be placed where they will interfere with the work or contribute to an overload of the walls of the excavation.

d. PIPE INSTALLATION

- (1) All pipe shall be laid true to line and grade with bells upstream and shall have a full, firm and even bearing. Boulders or other natural obstructions shall not be considered cause for varying from true line and grade.
- (2) The Contractor shall maintain line and grade of the storm sewer by use of batter boards or sewer laser.
 - (a) BATTER BOARDS or parallel string lines shall be set prior to laying the pipe. They shall be spaced no greater than 50 feet intervals. The pipe shall be set carefully to line and grade using a grade pole. A string line shall be set at least 150 feet (over at least 3 grade stakes) alongside the trench preceding the pipe laying operation to assist the excavator operator and guard against errors in grade stakes.
 - (b) In using an industrial laser specifically made for pipe laying operations, the Contractor shall closely follow all manufacturer's instructions and recommendations with regard to maintaining accuracy. (Normally no more than 300 feet of pipe is laid from the laser setup and fans are used to circulate air through the pipe to maintain a constant temperature).
 - (c) In any case, line and grade shall be periodically checked using a transit or preestablished grade.
- (3) When setting pipe, the workmanship and tools used shall be such that

the quality and strength of the pipe is not impaired.

(4) JOINTS

- (a) The joint surfaces of all pipes and fittings shall be clean, and shall fit together to form a tight joint.
- (b) Joints shall be made up following pipe manufacturer's recommendations and specifications.

(5) BEDDING

- (a) Where pipe is installed on native earth, the trench bottom shall be bedded as specified in Part V - Standard Details and Drawings.
- (b) Low areas shall be filled with suitable crushed stone.
- (c) Where rock in either ledge or boulder formation is encountered, it shall be removed below grade and replaced with suitable sand or crushed stone as shown on the construction details at the rear of this chapter.
- (d) Where a firm foundation is not encountered at the grade established due to soft, spongy or other unstable soil, (unless other special construction methods are called for on the plans) all such unstable soil, under the pipe and for a width of at least 1 foot diameter on each side of the pipe, shall be removed and replaced with suitable crushed stone or other approved suitable material properly compacted to provide adequate support for the pipe line.
- (e) Sanitary sewers shall be constructed using crushed stone bedding as specified shown in the detailed drawings.
- (f) Hand backfilling - Additional earth shall be added and tamped alongside the pipe until the top of the pipe is reached. The hand backfill shall follow closely behind pipe laying to prevent damage to or movement of the pipe by cave in of the trench walls. Pipe tamps and flat-bottomed tamps shall be used for this operation.
- (g) Safety cover - When the top of the pipe is reached, an additional 12 inches of earth shall be placed over the pipe by hand. The material shall be free from stones or rocks.
- (h) Backfill. Following the hand backfilling operation, backfill may be machine placed, provided that extreme care is used. Backfill

shall be made to existing grade and left in a neat and uniform condition. Excess earth shall be windrowed over the trench area. Where the trench passed under a ditch, stream, swale or drainageway, the backfill shall be left in such a manner as to allow proper drainage as well as duplicate conditions as they existed prior to construction. The surface must be entirely free from lumps of earth, stones and debris. Adjacent roadways shall be swept clean of all rubbish and flushed with water if necessary. Shoulders of highways which have been cut shall be carefully shaped and consolidated by tamping or rolling.

- (i) No rock shall be placed in the trench. Small boulders (9 inches or smaller) may be placed back into the trench, above the safety cover.
- (6) CRADLE - Where called for on the plans or as ordered by the Village to meet field conditions, pipe shall be installed on cradles. The Engineer for the Village will determine, at the time of construction, whether a dry or plastic mix will be used at any particular location depending upon trench conditions. The cradle shall be constructed of one-to-two-and-one-half-to-five concrete, using commercial Type 1 portland cement and clean, hard aggregate. Cradle material shall be placed to the width shown on the plans, or as ordered by the Municipal Engineer, and to an elevation $\frac{2}{3}$ up the side of the pipe. The pipe shall be laid in a channel formed in the material by means of a round-pointed shovel. High points and low spots shall be corrected and the pipe firmly bedded to line and grade and jointed. Additional cradle material shall then be added and tamped along the haunches of the pipe and subsequently shaped to the top of the pipe as shown on the Detail. A safety cover of 12 inches of earth shall then be placed and backfill made as required above.

5. MANHOLES

- a. Precast manholes shall not be shipped or handled until the concrete is completely cured. Any damage that occurs during shipping or handling shall be cause for rejection.
- b. Manhole sections shall be inspected before unloading and any sections that have been damaged or do not meet specifications shall not be unloaded.
- c. Manholes shall be set on concrete cradle as detailed in Part V.
- d. All pipe openings shall be preformed during manhole manufacture.
- e. Openings and lifting holes shall be completely filled with non-shrinking grout, and after initial set, waterproofed on the outside with 2 coats of dampproofing.

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- f. Joints shall be sealed immediately upon setting the manhole and coated with 2 coats of dampproofing.
 - g. BENCHES AND INVERTS - shall be formed of brick and accurately shaped to a semicircular section using $\frac{1}{2}$ pipe section conforming to the inside diameter of the adjacent sewer pipe. Changes in size and grade shall be made gradually and evenly. Changes in direction of the sewer and entering branches shall have a radius of $\frac{1}{2}$ of the inside diameter of the manhole. Where manhole inverts are straight through a half section of pipe may be used.
 - h. Grade rings shall be used to bring the manhole cover and frame to an elevation of $\frac{1}{4}$ inch below finished grade in paved areas, and to meet finished grade in other area. Maximum height of grade rings shall not exceed 8 inches.
 - i. Frames for covers shall be set in a full bed of mortar.

6. LATERALS

- a. Laterals shall be constructed with the same care as street sewers.
- b. Sanitary laterals shall be minimum 4 inches in diameter and shall be installed on a minimum slope of one-eighth ($\frac{1}{8}$) inch per foot.
- c. The pipe used for laterals shall have a joint specifically made to fit the bell on the Y-branch of the street sewer. Lateral piping shall be POLYVINYL CHLORIDE PIPE (PVC) shall be SDR-35 wall thickness with integral wall, bell and spigot rubber ring joints, or approved equal.
- d. Laterals shall be firmly bedded in the same crushed stone bedding required for storm sewers.
- e. They shall be laid true to line and grade, and the bedding material shall be tamped under the pipe and alongside the haunches to provide full bedding and lateral support for the entire length of the pipe.
- f. The interior of each pipe shall be cleaned before adding the next length of pipe.
- g. Laterals shall be installed at depths not greater than 10 feet.
- h. Use shall be made of concrete-encased riser pipes from the deep storm sewer to the ten-foot level to accomplish this method of construction.
- i. The connection to the trunk sewer shall be made using a Y-branch and elbow, encased in concrete and appropriate saddle slant.
- j. The ends of all laterals shall be plugged to prevent entry of dirt, soil or other deleterious material.

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- k. It shall be marked with a two-by-four-inch witness stake extending from the pipe to a point four (4) feet above the ground. The top of the witness stake shall be painted Green to indicate sanitary sewer. A record shall be kept of the location of all laterals, and this information shall be included on the record plans
7. **CONFLICTING PIPE LINES AND OTHER UTILITIES** - No existing pipeline, conduit, cable, poke, guy wire or other utilities or portion thereof shall be moved without the consent of the agency operating such utility. Any necessary changes in line and grade of the new pipe line shall be made only with the consent of the Superintendent of Public Works and the Municipal Engineer.
8. **CONSTRUCTION UNDER ADVERSE CONDITIONS** - No pipe shall be laid during adverse weather conditions. In no case shall pipe be laid in water. In cases where sewers are being installed in wet conditions or below the groundwater table so that installed pipes become submerged overnight, sufficient backfill shall be placed to prevent the pipe becoming buoyant.
9. **PROTECTION OF NEW WORK** - At the end of each working day (or any other time of work stoppage), the upstream end of the pipe shall be tightly plugged to prevent entrance of mud, silt or muddy water.
10. **PROTECTION OF EXISTING FACILITIES** - Care shall be taken at all times to avoid entrance of mud and water to existing sewers. When connecting to an existing manhole, the connection shall be tightly plugged until completion of the work. At that time, the plug shall be removed and the accumulated water and mud pumped out of the manhole under the supervision of the Municipal Engineer. The cost of any necessary cleaning or flushing of existing facilities caused by failure to comply with this specification or for other reasons will be borne by the Developer.
11. **TESTING**
- a. **GENERAL** - All sanitary sewers must be tested before being approved.
- A Municipal Inspector shall witness all tests.
- b. **VISUAL** - A visual inspection shall of each section of completed sanitary sewer shall be made for smoothness of invert, freedom from obstructions, and straightness of line.
- c. **DEFLECTION TEST**
- (1) Deflection tests shall be performed on all flexible pipe.
- (2) The test shall not be conducted until the final backfill has been in place for at least 30 days.
- (3) If a rigid ball or mandrel is used for the test, it shall have a diameter

equal to 95% of the inside diameter of the pipe.

- (4) Deflection tests shall be performed without the use of mechanical pulling devices.
- (5) No pipe shall be accepted if deflection exceeds 5%.

d. **INFILTRATION TEST**

- (1) Infiltration testing shall be permitted only when the groundwater levels are at least 5 feet above the top of the pipe for the entire length being tested.
- (2) Infiltration shall be measured by use of a watertight weir, or a device for volumetric measurement approved by the Engineer for the Village.

Tests shall be carried out over a period of at least three (3) hours, and the total leakage of any section tested shall not exceed the rate of one hundred (100) gallons per mile of pipe per twenty-four (24) hours per inch of nominal diameter. If leakage exceeds the specified amount, the Contractor shall make the necessary repairs to reduce the leakage within the specified limits, and the tests shall be repeated until the leakage requirement is met. Leakage tests shall include manholes. Where there is a difference of seven (7) feet in elevation of inverts between manholes, this section of sewer shall be tested by air and manholes checked by water.

Exfiltration tests shall be conducted by filling the pipe with water to provide a head of at least five (5) feet over the highest point of the line, or five (5) feet above the groundwater, whichever is higher, and measuring the leakage.

e. **AIR TEST**

- (1) The Contractor has the option to test all sewer sections by air. Air testing shall be conducted as follows:
- (2) After completing backfill of a section of wastewater line, the Contractor shall, at his expense, conduct a line acceptance test using low pressure air. The test shall be performed using the equipment described below, according to stated procedures and under the observation of the Engineer for the Village.
- (3) Cherne Air-Loc Equipment, as manufactured by Cherne Industrial, Inc., of Edina, Minnesota or approved equal meeting the following minimum requirements shall be used:
 - (a) Pneumatic plugs shall have a sealing length equal to or greater than the diameter of the pipe to be inspected.

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- (b) Pneumatic plugs shall resist internal test pressures without requiring external bracing or blocking.
 - (c) All air used shall pass through a single control panel.
 - (d) Three (3) individual hoses shall be used for the following connections: From control panel to pneumatic plugs for inflation; from control panel to sealed line for introducing the low-pressure air; and from sealed line to control panel for continually monitoring the air-pressure rise in the sealed line.
- (4) Procedures.
- (a) All pneumatic plugs shall be seal tested before being used in the actual test installation. One (1) length of pipe shall be laid on the ground and sealed at both ends with the pneumatic plugs to be checked. Air shall be introduced into the plugs to twenty-five (25) pounds per square inch gauge. The sealed pipe shall be pressurized to five (5) pounds per square inch gauge. The plugs shall hold against this pressure without bracing and without movement of the plugs out of the pipe.
 - (b) After a manhole-to-manhole reach of pipe has been backfilled and cleaned and the pneumatic plugs are checked by the above procedures, the plugs shall be placed in the line at each manhole and inflated to twenty-five (25) pounds per square inch gauge. Low-pressure air shall be introduced into this sealed line until the internal air pressure reaches four (4) pounds per square inch gauge greater than the average back pressure of any groundwater that may be over the pipe. At least two (2) minutes shall be allowed for the air pressure to stabilize.
 - (c) After the stabilization period (three and five-tenths (3.5) pounds per square inch gauge minimum pressure in the pipe), the air hose from the control panel to the air supply shall be disconnected. The portion of line being tested shall be termed "acceptable" if the time required, in minutes, for the pressure to decrease from three and five-tenths (3.5) to two and five-tenths (2.5) pounds per square inch gauge (greater than the average back pressure of any groundwater that may be over the pipe) shall not be less than the time shown for the given diameters in the following table:

Pipe Diameter (inches)	Minutes
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4	2.0
6	3.0
8	4.0
10	5.0
12	5.5
15	7.5
18	8.5
21	10.0
24	11.5

- (d) In areas where groundwater is known to exist, the Contractor shall install a one-half-inch-diameter capped pipe nipple, approximately ten (10) feet long, through the manhole wall on top of one (1) of the sewer lines entering the manhole. This shall be done at the time the sewer line is installed. Immediately prior to the performance of the line acceptance test, the groundwater shall be determined by removing at the pipe cap, blowing air through the pipe nipple into the ground so as to clear it, and then connecting a clear plastic tube to the nipple. The hose shall be held vertically and a measurement of the height in feet of water over the invert of the pipe shall be taken after the water has stopped rising in this plastic tube. The height in feet shall be divided by two and three-tenths (2.3) to establish the pounds of pressure that will be added to all readings. (For example, if the height of water is eleven and one-half (11-1/2) feet, then the added pressure will be five (5) pounds per square inch gauge. This increases the three and five-tenths (3.5) pounds per square inch gauge, to eight and five-tenths (8.5) pounds per square inch gauge, and the two and five-tenths (2.5) pounds per square inch gauge to seven and five-tenths (7.5) pounds per square inch gauge. The allowable drop of one (1) pound and the timing remain the same).
- (5) If the installation fails to meet this requirement, the Contractor shall, at his own expense, determine the source of leakage. He shall then repair or replace all defective materials and/or workmanship as specified elsewhere. The air test shall be repeated until the reach of sewer meets with the test requirements.
- e. **MANHOLE TEST**
- (1) After a section of sanitary sewer is tested and approved by the Village, the manholes shall be tested by water. The tests shall be run using the following procedure:
- (a) The inlet and outlet pipe for the manhole shall be plugged with a plumbers plug that allows no leakage. The manholes shall be filled with water to a height just below the steel frame. Water

shall remain for 1 hour to allow for stabilization and soaking into the concrete.

- (b) The test shall be run for a minimum of 3 hours. Measurements from the top of water to the top of frame at the start and finish of the test shall be taken.
- (c) The manhole shall be watertight, and no drop in water elevation shall be allowed.

f. LATERAL TEST

(1) Inspection of the laterals shall be made for the following:

- (a) Connection to street sewer.
- (b) Materials, joints, alignments and bedding of piping.
- (c) Proper connections.
- (d) Cleanouts, where required.

H. CONSTRUCTION OF WATER MAINS AND APPURTENANCES

1. GENERAL - All water main construction and related work shall conform to the provisions and specifications contained below.

2. WATER PIPE AND FITTING MATERIALS - All materials used in the work shall meet the requirements as specified, unless the same are altered by specific requirements under any itemized specification or by modifying notes shown upon the plans. In the absence of any specific reference to specifications, the material to be incorporated into any project, and the work to be performed are intended to conform to the American Water Works Association and American National Standards Institute standards and specifications.

- a. **Tapping sleeve** shall be the Mueller mechanical-joint-type outlet flange, American one-hundred-twenty-five-pound standard (ASA B-16.1-1960) Cat. No. H-615, tapping sleeve for cast-iron pipe or approved equal.
- b. **Tapping valve** shall be the Mueller mechanical-joint-type inlet flange, American one-hundred-twenty-five-pound standard (ASA Series 16.1 Cat. No. H-667) tapping valve with O-ring seals, or approved equal.
- c. **Valve boxes** shall be Buffalo CC Type/No. 6 base with lid and any extension pieces required by field conditions, or approved equal. They shall be 3 piece screw type with 48 to 60 inch nominal extension.

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- d. **Water main** shall be either:
- (1) **DUCTILE IRON PIPE (DIP)**, Class 52, meeting AWWA C151/ANSI A21.51, cement-lined ASA A21.4 with seal coating inside and bituminous coating outside. ANSI A21.11 push-on or mechanical joints, with two brass wedge inserts to insure electrical conductivity across each joint.
 - (2) **POLYVINYL CHLORIDE (PVC)**, DR 14, meeting AWWA specification C-900.
- e. **Fittings** shall be ductile iron, meeting ASA 21.10 (AWWA C110) mechanical joint, Class 250.
- f. **Anchor fittings** shall be Clow F-1215 and F-1216 or approved equal.
- g. **Gate valves** shall meet AWWA specification C-509, shall be double disk construction, with O-ring stem seal, shall open right, and shall be furnished with screw-type box and cover and extension pieces required by field conditions or approved equal. Valves shall have mechanical-joint ends.
- h. **Hydrants** shall be Mueller Cat No. A 24012 or approved equal. They shall meet AWWA C-502-80, having 5¼" valve opening, two 2½" hose nozzles and one 4½" pumper nozzle, O-ring seal hydrant packing, 5'-0" bury length (with extensions as necessary), "break-away" traffic model, 6" DIP mechanical joint inlet connection, National Standard threads, pentagon operating nut (opening left or counter-clockwise), with pressure activated drain. They shall be factory painted with high visibility red enamel above grade and tar coated below grade.

Chains shall be omitted on the nozzle caps.

- i. **Corporation stops** shall be:

One-inch by one-inch compression copper outlet - Mueller # H-15008.

- j. **Curb stops** shall be Mueller Mark II Oriseal Valve:

Copper to copper, compression connection - # H-15209.

- k. **Curb boxes** shall be:

Mueller # H-10306, extension 54 to 66 inches, with 84154 rod;

Couplings shall be Mueller:

Copper to copper, compression connection - # H-15403.

m. **Service pipe shall be:**

- (1) **COPPER** shall be minimum 1" Type K copper tubing, meeting ASTM B-88, with conductive compression fittings.
- (2) **PLASTIC** shall be minimum 1" class 160 polyethylene, meeting ASTM D2737 and National Sanitation Foundation approved, with compression type joints and stainless steel inserts. To be used only in services over 150'.

n. **Casing pipe** shall be welded steel pipe with 0.25" wall thickness, meeting AWWA C 200, minimum 24" inside diameter. Larger diameter be used at the option of the Contractor for convenience of installation.

3. WORK

a. The work consists of the construction of the water main including connections to the existing mains, the furnishing, and installing all pipe, fittings, materials and appurtenances; the furnishing and installing of all blocking, concrete thrust blocks and wedging, sleeves, bends, tees and plugs; the proper bedding and compaction around the main; and all excavation and backfill.

b. **Taps**

(1) Where necessary, the Contractor shall furnish and install mechanical-joint-type tapping sleeves and valves of the size necessary to tie into existing water mains at a location satisfactory to the Engineer for the Village and the Village Superintendent. It is intended that the connection between the water main and a branch be made under pressure with no loss of water or interruption of flow in the main. The Contractor shall furnish the drilling machine necessary to install these sleeves and valves, and shall ensure that competent workmen skilled in this operation perform the work.

(2) In making connections to existing water main, the Contractor shall uncover the existing main, and determine the location of the nearest joint suitable for the connection as directed by the Village

Superintendent or Engineer for the Village , as appropriate.

- (3) The Contractor shall not shut down the existing water main without the express permission of the Village Superintendent. Necessary fittings and sufficient number of skilled personnel shall be on the job in order to make the necessary connections in a minimum length of time. Adequate tie rods shall be installed for bends and tees used in making the connection. If the existing main must be shutdown, it shall be back in operation in four (4) hours.

4. WATER MAIN INSTALLATION

- a. CONNECTION TO EXISTING - The Contractor shall connect new water main to existing main as directed by the Village Superintendent or Engineer for the Village, as appropriate.

Contractor shall uncover the existing water main, and determine the location of the nearest joint suitable for the connection.

The existing main shall not be shut down without the approval of the Village Superintendent. Necessary fittings and sufficient number of skilled personnel shall be furnished by the Contractor to make the connection in a minimum length of time. The existing water main is to be back in operation in 4 hours.

- a. Prior to starting work, the Contractor shall become familiar with the location of existing valves and their workability. All labor and equipment necessary for making all valve closures and openings shall be furnished by the Contractor. **PRIOR** to operating any valve or hydrant, the Contractor shall obtain the permission of the Village Superintendent or other appropriate official.
- b. Pipe shall be carefully unloaded from trucks using hogging lines and planks or shall be carefully removed by use of sling and power equipment. No pipe shall be allowed to roll off the truck onto the ground, nor shall it be removed by any other method which might induce shock loading on the barrel or bell of the pipe. Pipe shall not be pushed along the ground using power equipment. Each pipe shall be inspected for fault or damages to either the pipe or the cement lining prior to being lowered into the trench. Dirt or other foreign material shall be cleaned from the pipe before lowering into the trench.
- c. The pipe shall be lowered into the trench utilizing accepted grips or slings and power equipment. Trench waters shall be kept out of the pipe. The pipe shall be kept closed by means of test plugs when work is not in progress.
- d. Trenches shall be excavated as narrow as possible in accordance with good design and construction practice. In no case shall trench widths be greater than the outside diameter of the pipe plus twelve (12) inches on each side of the pipe.

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- e. Trench depths shall normally be such as to provide minimum of four and one-half feet of cover to finished grade unless otherwise directed or indicated on the plans with appropriate profiles, cross sections or notes.
 - f. When passing through tree roots, under concrete gutters or under utilities, the Contractor shall perform tunneling so as to prevent cutting of main roots or damage to gutter or utility foundation.
 - g. All pipe and fittings shall be placed on solid earth for their entire length. Valves shall be placed on concrete blocks to assure distribution of surface loadings transmitted to the valves.
 - h. At each joint, the trench shall be excavated by hand below normal trench bottom to provide room to make the joint properly and prevent undue stresses on the bell. Placing the pipe on wood blocks or mounds of earth, or otherwise installing it so that full-length pipe support is not obtained will not be permitted.
 - i. JOINTS - The particular joints specified shall be made in accordance with best practice and manufacturer's recommendations.
 - j. PIPE BEDDING - After installing the pipe and making the joints, bedding material as specified by the Design Professional shall be tamped under the haunches and along side the pipe using the tamping tools specified on the standard sheets herein. This compaction shall continue until a layer of bedding material, thoroughly compacted and free of large clods, chunks of clay or stones is constructed half-way up both sides of the pipe. No water main will be approved which has not been installed in the above manner.
 - k. BACKFILLING - After properly compacting the bedding material around the pipe as specified above, loose material, free of rocks or large, hard chunks of clay, shall be placed by hand over the pipe for a depth of at least equivalent to the diameter of the pipe. Following this operation, the trench may be backfilled by machine using extreme caution to prevent damage to the pipe because of shock loads. A responsible person shall be detailed to supervise this operation. That person shall be so stationed that the backfill material can be observed as it is pushed into the trench. Where crossing under pavement, sidewalk or gutter the backfill shall be compacted in six-inch layers.
 - l. CUTTING PIPE - Whenever it may be necessary to cut pipe for any purpose, it shall be done by skilled workmen using proper tools. Pipe which, in the judgment of the Engineer for the Village or Superintendent of Highways, is unsatisfactory shall be rejected and removed from the site of the work.
5. THRUST BLOCKS - At all tees, bends or sharp curves and any other location determined by the Design Professional, Engineer for the Village, or the Village

Superintendent, concrete thrust blocks shall be poured between the pipe or fittings, and the firm wall of the trench. The concrete shall be one to two to three and one-half (1:2:3-1/2) by volume, and shall contain only sufficient water to make the mix workable. Sakrete or other acceptable packaged mixes may be used. Forms of wood, concrete block or stone shall be used to contain the fresh concrete and prevent any movement or applied load until the concrete has reached full set. (See the Table of Thrust Blocks herein for required dimensions). Stone or wood blocks will not be permitted as thrust blocks except as temporary construction blocking.

Thrust blocks shall not be covered until receiving approval from the Engineer for the Village or Superintendent of Highways.

6. **FITTINGS** - In order to ensure firm even bedding for fittings, pipe and any necessary thrust blocks, a sump hole and pump shall be provided to remove the water that drains into the excavation from the opened water main.
7. **VALVES**
 - a. Prior to installation, valves shall be stored under cover and kept clean and dry.
 - b. Before setting the valve, the Contractor shall check the stuffing box, tighten bolts, check valve seats and completely open and close the valve to assure proper operation.
 - c. Valves shall be set truly vertical on a firmly bedded concrete block.
 - d. After setting the valve, constructing the thrust block, and making the joints, earth shall be tamped around the valve up to within several inches of the operating nut.
8. **HYDRANTS**
 - a. Hydrants shall be installed in accordance with the recommendations of the manufacturer, and the hydrant detail included herein, and shall be set plumb.
 - b. The Contractor shall check the hydrant before installation to assure that all flange nuts are tight and that the hydrant is in perfect operating order.
 - c. Care shall be taken in placing the poured concrete thrust blocks to keep mortar out of the drain hole. Plank or timber bracing shall be used to keep the hydrant plumb during backfilling operations. Earth backfill around hydrants shall be thoroughly tamped and compacted. All cuts or fills shall be stable; all disturbed areas shall be hand trimmed, topsoiled, and seeded as required.
 - d. The Contractor shall have the option to furnish and install hydrants with anchor pipe fittings in lieu of tie rods and clamps.
 - e. Hydrant extensions shall be furnished as required.

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9. SERVICES - Service piping shall be installed under highways by washing, boring, jacking or other acceptable means. Open cuts of pavement will not be permitted.
10. STERILIZING
- a. FILLING MAIN
- (1) When ready for testing, the newly constructed main can be filled using water from the existing system.
 - (2) The permission of the Village Superintendent **MUST** be obtained before beginning any filling operation.
 - (3) The Developer shall be responsible for arranging to pay for any water used for filling, testing, and flushing shall be paid for by the Developer.
 - (4) In filling the mains, the Developer shall leave hydrants open as necessary to expel air.
- b. DISINFECTION
- (1) Water main disinfection shall conform to AWWA C 601-80 *Disinfection of Water Mains*, (excepting item 5.1) and the requirements of New York State Department of Health.
 - (2) The Contractor shall thoroughly sterilize the mains by the addition of HTH or other appropriate chlorine compounds; or shall chlorinate with chlorine solution upon completion of the work.
 - (3) The chlorinated water shall remain in the mains for twenty-four (24) hours, after which it shall show a chlorine residual of at least ten (10) parts per million.
- c. FLUSHING - Upon approval of the chlorine residual test, the lines shall be thoroughly flushed using a minimum flushing velocity of 2.5 feet per second.
11. TESTING
- a. GENERAL
- (1) The Contractor shall furnish labor and equipment for doing the testing described below, including making all necessary valve closures and openings.
 - (2) Prior to starting work, the Contractor shall become familiar with the location of existing valves and their workability.
 - (3) Permission shall be obtained from the Village Superintendent before operating existing valves or hydrants.

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- (4) The Contractor shall be responsible for closing any service valves or shutoff valves as necessary to avoid damage to consumers' plumbing during testing.
 - (5) Testing shall not be done on sections of water main exceeding 2,000 feet in length.
 - (6) In the event that the line is not pressure tested until after backfill is placed, and if a leak or other defect is found, the Contractor, in addition to making the repairs, shall do all excavation, backfill and cleanup necessary to make the repairs, and shall do so at his expense.
 - (7) No final testing for the Village 's approval shall be made unless the Village Superintendent or the Engineer for the Village is present.
- b. **HYDRANT TEST**
- (1) The Contractor shall test hydrants by completely opening and closing guard valve with water in the main to assure proper operation; with guard valve open, completely opening and closing hydrant to assure proper operation of the hydrant valve; and closing the hydrant and observing for positive drainage of the hydrant.
 - (2) Hydrants shall be subjected to the pressure tests described below by leaving the guard valves in the open position during those tests.
- c. **PRESSURE TEST**
- (1) Newly constructed mains shall be subjected to a minimum of two hundred (200) pounds per square inch pressure for one (1) hour.
 - (2) Allowable leakage during the pressure test shall be in accordance with AWWA C-605-94 Tables 2 and 3. The Contractor shall furnish a disk-type meter to measure the pressures during the test.
 - (3) The Contractor shall not permit the pressure to drop more than 5 psi below the test pressure during the 1 hour test. If the pressure drops below 195 psi, sufficient water shall be added to the test section to raise the pressure up to the required pressure. The intent is to maintain the test pressure for 1 hour to uncover any weakness or flaw in the materials or workmanship.
 - (4) Any leaks indicated by a loss of pressure shall be repaired to the satisfaction of the Village Superintendent or Engineer for the Village.
- d. **LEAKAGE TEST**
- (1) Following the pressure test, the pipe shall be subjected to a 24 hour leakage test under proposed line pressure.

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- (2) The line-pressure test shall be conducted by making a jumper between the existing line to which the new mains have been connected, and the new main, by jumping around a main line valve which is to be left in the closed position. This jumper shall include a five-eighths-by-three-fourths-inch disk-type meter to establish the amount of flow over the twenty-four-hour period. It is the Developer's responsibility to protect this meter from vandalism or damage of any type during the test period. In times of cold weather, the Contractor shall protect it against freezing. The jumper shall also include appropriate gauges and valves to run a suitable test.
 - (3) Leakage shall be determined at 30 minute intervals by means of volumetric measurement of the water added during the test to maintain operating pressure.
 - (4) Measured leakage loss shall not exceed 0.1 gallon of water per joint in a 24 hour period.
- e. **BACTERIOLOGICAL TEST**
- (1) Upon completion of all testing herein described, and after flushing and chlorinating mains, the Contractor shall request of the Monroe County Health Department that the tests be made for bacteriological quality of the water.
 - (2) The results shall be furnished to the Engineer for the Village and the Village Superintendent in writing.
- f. **SERVICE TEST**
- (1) Each water service shall be tested during installation, prior to backfilling, by subjecting it to normal line pressure.
 - (2) The following steps will be followed for each test:
 - (a) Open the curb stop.
 - (b) Open the corporation stop.
 - (c) Expel all air from the service line.
 - (d) Close the curb stop.
 - (e) Observe the service for leaks.
 - (f) Any leaks discovered shall be repaired and the line retested.
- g. **PROHIBITION OF USE**
- (1) No house connections or other use of water shall be made until the main has been approved for drinking purposes by the Monroe County Health Department.
 - (2) Hydrants shall be "bagged" to indicate they are unusable for fire

protection until the line is placed into operation, and the Village Superintendent gives permission to remove the cover.

12. PROTECTION AND REPAIR OF PAVEMENT AND SHOULDERS

- a. The Contractor shall use extreme caution to avoid damage to pavement and pavement edges. He shall repair, at no expense to the owner, any damage incurred while tying into existing water mains.
- b. Upon completion of the backfilling, the Developer shall mound any excess earth over the trench. The remainder of the road shoulder shall be cleaned up and left in a neat, well-drained condition. Care shall be exercised that the mound of earth does not block off drainage from the road to the catch basin or to drainage swales or ditches.
- c. Soft shoulders signs shall be erected at least every three hundred (300) feet along the trench. They shall be maintained for at least forty-five (45) days. At the completion of this time, unless fast settlement conditions permit otherwise, the Contractor shall return to the site of the work, fill in depressions and remove excess material as required and return the shoulder and trench areas to original condition.

13. FINAL CLEANUP AND RESTORATION OF SITE

- a. When all other work has been completed, after settlement has occurred and/or when ordered by the Engineer for the Village or Superintendent of Highways, the Contractor shall clean up and restore the site to its original condition.
- b. This shall include cleaning out of driveway pipes and drains which contain eroded soil from the project, cleaning out and regrading ditches to drain properly, restoring of settled areas, any necessary repair to pavement or shoulder surfaces required as a result of this project, trimming of shrubs or branches broken or damaged as a result of the project, removal of stones and debris from trench surfaces and any other work necessary or proper to restore the site to its original condition.

14. SPECIAL ATTENTION IN ROCK AREAS

- a. Pipe installation shall be as follows: Pipe shall be installed on wood blocking to assure absolute clearance from the rock. In no case shall the pipe be closer than six (6) inches from the rock. This includes bells. At least four (4) sets of blocking shall be firmly wedged under each pipe length. After the inspector checks the pipe for compliance with the six-inch measurement and has advised his approval, the Developer shall place granular sand cushion around and over the pipe as shown in the detail enclosed herein. Granular sand material shall be subject to the approval of the Engineer for the Village .
- b. The granular sand material shall be tamped under the haunches alongside and over the pipe. The blocks shall then be pulled. Following this, eighteen (18)

inches of safety cushion shall be hand placed, using rock-free earth. The remainder of the trench shall then be carefully backfilled. Number 1 and No. 2 crushed stone shall be used where water is encountered.

I. CONSTRUCTION OF STREETS AND ROADS

1. **MATERIALS** - All materials used in the work shall meet the requirements as specified, unless the same are altered by specific requirements under any itemized specification or by modifying notes shown upon the plans and approved by the Village . In the absence of any specific reference to specifications, the material to be incorporated into any project, and the work to be performed are intended to conform to New York State Department of Transportation specifications, as determined by the Engineer for the Village .
 - a. **Granular fill** shall conform to NYSDOT 203-2.02C Select Granular Fill.
 - b. **Subbase course** shall conform to NYSDOT 304-2 Type 4 subbase crushed dolomite limestone.
 - c. **Crushed stone** shall conform to NYSDOT 703-0201 size 1A crushed stone for surface treatment.
 - d. **Bituminous material** shall conform to NYSDOT 702-3101 asphalt emulsion, Grade RS-2.
 - e. **Tack coat** shall conform to NYSDOT 702-90.
 - f. **Asphalt binder** shall conform to NYSDOT 401-2, type 3.
 - g. **Asphalt shim course** shall conform to NYSDOT 401-2, type 5.
 - h. **Asphalt top** shall conform to NYSDOT 401-2, type 7.
 - i. **Concrete for pavements** conform to NYSDOT 501-2 Portland cement concrete. Class and compressive strength shall be based on use and as specified by the design professional.
 - j. **Concrete for sidewalks** shall conform to NYSDOT 608-2.02.
 - k. **Concrete for gutters** shall conform to:
 - (1) NYSDOT 624-3.02A for conventionally formed gutters; or
 - (2) NYSDOT 624-3.02B for machine formed gutters.
 - l. **Stone curb** shall be granite conforming to NYSDOT 714-01.

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- m. **Joint filler** shall conform to NYSDOT 705-07 premolded resilient joint filler.
 - n. **Curing compound** shall conform to NYSDOT 711-05 membrane curing compound.

2. PREPARING ROAD SUBGRADE

- a. Preparation of the road subbase shall not start until all underground utilities are installed and tested.
- b. The Contractor shall excavate for the base, pavement and gutters or curbs to the designed subgrade elevation and six (6) inches wider on each side than the designed pavement and gutter width as shown on the Typical Road Section and as indicated in the following specifications.
- c. The subgrade shall be excavated or boxed following the depth and alignment of the stakes established by the Developer's licensed land surveyor or design professional for this purpose. These stakes shall be at intervals of not more than fifty (50) feet and at twenty-five (25) feet in areas on grades of less than five-tenths percent (0.5%).
- d. After being excavated to the proper depth, the subgrade shall be graded and crowned one-fourth (1/4) of an inch to each foot of width on each side of the center line, allowing for extra wedge excavation of three (3) feet by eight (8) inches as shown on Typical Road Section, and rolled thoroughly with a ten-ton three-wheeled roller or vibratory roller capable of producing a minimum dynamic-vibration force of twenty-seven thousand (27,000) pounds.
- e. Any unsuitable material found below subgrade shall be removed and replaced by approved granular fill and compacted in six-inch lifts:
- f. If the fine grade becomes rutted, it shall be regraded and rolled before the base is put in.
- g. No base shall be put in over unstable trenches or soft spots. If this condition should arise, the unsuitable soil shall be removed and filled with approved granular fill over geotextile fabric for undercut. The Contractor is responsible for any settling in finished pavement.
- h. Where crossover trenches are required for utility services, the trenches shall be backfilled with the excavated material, if acceptable, and approved by the Village Superintendent or Engineer for the Village, or select granular fill. Material shall be compacted in six-inch layers with vibrating tamping equipment to 95% compaction as determined by Modified Proctor Testing. (Developers

note that this includes cross-overs for gas mains and other utilities and services.)

- i. Where pavements must be placed on an embankment condition, the entire height of the embankment must be constructed with the use of appropriate compaction equipment. The entire embankment shall be compacted to 90% (modified Proctor Test). Results of compaction tests conducted by a competent soils-testing laboratory shall be certified by the laboratory and submitted to the Engineer for the Village .

3. SUBBASE

- a. After proof-rolling and approval of the subgrade the Contractor shall furnish and put in place dolomite limestone in two (2) courses consisting of maximum six-inch lifts as shown on the Typical Standard Road Section and in conformance with NYSDOT 304.
- b. After proper rolling and grading of the subgrade the three-foot by eight-inch wedge is to be filled with No. 1 and No. 2 crushed stone, and 4" Polyethylene corrugated perforated underdrain pipe.
- c. Subbase courses for permanent roads must not be used for access roads in wet weather, or at such times when the subgrade could become pumped into the subbase course. (This is one of the main contributing factors to the alligating-type of failure which is seen so frequently in subdivision streets).

4. CONCRETE GUTTERS OR CURB

- a. After completion of the subbase and approval by the Village , the Contractor shall furnish and place portland cement concrete gutters or stone curb as shown on the plans and in accordance with the thickness and cross section as shown on the Typical Road Section and as stated in the following specifications.
- b. The concrete gutters or curb shall be constructed of the shape shown on the Typical Road Section and shall conform to the lines and grades shown on the plans and as approved by the Village .
- c. Concrete gutters shall be constructed in conformance with NYSDOT 624-3.02.

5. BITUMINOUS CONCRETE PAVEMENT

- a. The Contractor shall furnish and construct a two-course bituminous concrete pavement laid to conform to the required thickness and cross section as shown on the plan and on the Typical Road Section and as further described in the following specifications.
- b. Construction of bituminous asphalt pavement shall conform to NYSDOT 401.

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- c. Before starting the laying of the asphalt pavement, the gravel base shall be graded and compacted between the concrete gutters according to the plan. Also, manholes should be adjusted to the proper grade to meet the crown and slope of the finished pavement.
 - d. The asphalt shall be applied in two (2) courses consisting of a two-inch binder course and a 1 ½ inch top course, compacted thickness. The pavement shall be laid by an approved self-propelled, crawler-mounted, asphalt spreader manned by competent operators. The 1 ½ inch topping may be laid in the year following the installation of the binder course with the approval of the Village Superintendent.
 - e. Each course will be compacted by rolling with a ten-to-twelve-ton tandem roller at the appropriate time by a competent operator.
 - f. All raking shall be done by skilled help to maintain a smooth and uniform finish at intersections, curves and around manholes, valve boxes, etc.
 - g. Before applying the top course, any irregularities found in the binder course shall be eliminated.
 - h. At no time will cold patch or winter mix be used for any purpose.
 - i. Protection of new pavement shall be provided until properly set. This protection is necessary on subdivisions where the traffic is mostly by cars starting and stopping or by heavy trucks.
 - j. The finished pavement shall be level or slightly above (a maximum of one-fourth (1/4) inch) the concrete gutters; at no time shall it be below.
 - k. Stabilized shoulders shall be constructed on completed subbase in conformance with NYSDOT 410-3.02.
6. **CONCRETE SIDEWALKS**
- a. Concrete sidewalks shall be constructed in conformance with NYSDOT 608-3.01.
 - b. Before setting forms, the subbase course shall be inspected by the Village Superintendent or Engineer for the Village. Any depressions, ruts and soft areas shall be corrected and the surface regraded and thoroughly compacted. The subbase course shall be thoroughly wetted before placing of concrete.
 - c. Sidewalks may be conventionally formed or machine formed.
7. **COLD-WEATHER CONCRETING** - Concrete gutters on sidewalks shall not be installed while there is frost in the ground. Concrete installed in the cold weather shall be

suitably covered by straw, hay or other means to prevent freezing.

8. **WET-WEATHER CONCRETING** - Concrete gutters on sidewalks shall not be installed where there is water lying between the forms or where the gravel is soft from rain. Concrete installed (unavoidably) during a rainstorm shall be covered by a waterproof material immediately.
9. **CURING CONCRETE** - Concrete gutter shall be cured by spraying the ACCURE manufactured by the Allerton Chemical Company, Polyclear manufactured by the UPCO Company, or an approval equal. The spray shall be applied to the gutter at the coverage rate as specified by the manufacturer.
10. **STREET AND TRAFFIC SIGNS**
 - a. Street signs shall be provided at all street intersections and shall conform to the requirements of NYS Manual of Uniform Traffic Control Devices, and will be provided and installed by the Village of Churchville. All costs for signs and installation to be paid by the Developer.
11. **MONUMENTS** - Monuments shall be installed plumb, with the top set 1/4-inch below finished grade, at the locations shown on the approved final plans and staked out by a Licensed Surveyor. Fill the space around the monument with thoroughly compacted dry concrete.

J. RESTORATION

1. **GENERAL** - The Developer, where applicable, shall restore all fields, lawns and drives to preconstruction conditions.
2. **REPLACING OF FIELDS and LAWNS**
 - a. The Developer shall, where crossing farm fields, open lots and all areas other than road shoulders (and lawns as described below), remove and stockpile along the route sufficient topsoil to provide at least three (3) inch of topsoil cover over the disturbed areas upon completion of the project.
 - a. Lawns shall be restored to their original condition by either removing and replacing the sod and topsoil; or by replacing in kind with new topsoil and sod; or by replacing with topsoil, seed, fertilizer and mulch as necessary to obtain a dense, healthy growth of lawn grass.
 - b. At least three inches (compacted thickness) of topsoil, free of stones and pebbles, shall be placed on all disturbed lawn areas. Fertilizer, lawn seed, and mulch shall then be spread using spreaders properly adjusted for the correct rate of application, or by hydroseed equipment.

- c. The Developer shall be responsible for obtaining a dense, matured lawn condition. Fertilizer, seed, and mulch shall be as specified below.
- d. Lawn areas shall be compacted and hand trimmed to original grade (minus topsoil depth) within forty-eight (48) hours after installing the pipe and backfilling in that area.

3. FERTILIZER, SEED, and MULCH

- a. (1) Fertilizer: (a) Commercial 10-6-4 fertilizer.
(b) Applied at a rate of twenty (20) pounds per one thousand (1,000) square feet.
- (2) Lawn seed: (a) Twenty-five percent (25%) Kentucky bluegrass. Forty percent (40%) creeping red or chewing fescue. Twenty percent (20%) maximum annual rye grass. Five percent (5%) maximum redtop.
(b) The seed mixture shall be at least ninety-two percent (92%) purity with the following germination's:
 - Kentucky bluegrass: 80%.
 - Fescue: 85%.
 - Rye and redtop: 90%.
- (c) It shall be applied at a rate of four (4) pounds of seed per one thousand (1,000) square feet.
- (3) Mulch:

After replacing the topsoil over the settled and graded trench, for all areas other than lawns and road shoulders, the Developer shall place fertilizer, seed and mulch in accordance with the following specification:

Fertilizer: commercial 10-6-4 fertilizer applied at least twenty (20) pounds per one thousand (1,000) square feet.

Seed: Fifty percent (50%) annual rye grass.
Fifty percent (50%) perennial rye grass.

Applied at four (4) pounds of seed

per one thousand (1,000) square feet. The seed mixture shall be at least ninety-two percent (92%) purity with ninety percent (90%) germination.

Mulch:

4. These items may be applied using the hydroseed method.

hand-trimmed after topsoil is placed. The lawn shall then be seeded, fertilized, mulched and rolled with a hand roller. Any depressions or high points shall be corrected, reseeded and rerolled.

The Developer is responsible for obtaining a healthy growth of grass.

- 5.3 RESTORATION OF DRIVEWAYS - Driveways shall be replaced in kind, whether gravel, stone or otherwise. Trench backfill under driveways shall be an approved bank-run gravel tamped in layers or otherwise compacted to prevent later settlement. No driveways shall be left open overnight. Drives shall be maintained in a level, firm stable condition. Ruts, puddles, soft spots, bumps and depressions shall be immediately corrected.

- d. The asphalt shall be applied in two (2) courses consisting of a two-inch binder course and a 1½ inch top course, compacted thickness. The pavement shall be laid by an approved self-propelled, crawler-mounted, asphalt spreader manned by competent operators. The 1½ inch topping may be laid in the year following the installation of the binder course with the approval of the Village Superintendent. When the top course is not installed in the same season as the binder course, cleaning of the binder course is required. The binder cleaning shall be cleaned by the use of mechanical sweepers, hand brooms and hydro-flushing or other effective means until the surfaces are free of all material which might interfere with the bond between the binder and top course. Cleaning shall continue until adequate cleaning results, as determined by the Village Superintendent and the Village Engineer. If adequate cleaning can not be accomplished to the satisfaction of the Village Superintendent and the Village Engineer a tack coat will be required and installed in conforming to NYDOT section 407 – Tack Coat.
- e. Each course will be compacted by rolling with a ten-to-twelve-ton tandem roller at the appropriate time by a competent operator.
- f. All raking shall be done by skilled help to maintain a smooth and uniform finish at intersections, curves and around manholes, valve boxes, etc.
- g. Before applying the top course, any irregularities found in the binder course shall be eliminated.
- h. At no time will cold patch or winter mix be used for any purpose.
- i. Protection of new pavement shall be provided until properly set. This protection is necessary on subdivisions where the traffic is mostly by cars starting and stopping or by heavy trucks.
- j. The finished pavement shall be level or slightly above (a maximum of one-fourth (1/4) inch) the concrete gutters; at no time shall it be below.
- k. Stabilized shoulders shall be constructed on completed subbase in conformance with NYSDOT 410-3.02.

6. CONCRETE SIDEWALKS

- a. Concrete sidewalks shall be constructed in conformance with NYSDOT 608-3.01.
- b. Before setting forms, the subbase course shall be inspected by the Village Superintendent or Engineer for the Village . Any depressions,

ruts and soft areas shall be corrected and the surface regraded and thoroughly compacted. The subbase course shall be thoroughly wetted before placing of concrete.

- c. Sidewalks may be conventionally formed or machine formed.
- 7. **COLD-WEATHER CONCRETING** - Concrete gutters on sidewalks shall not be installed while there is frost in the ground. Concrete installed in the cold weather shall be suitably covered by straw, hay or other means to prevent freezing.
- 8. **WET-WEATHER CONCRETING** - Concrete gutters on sidewalks shall not be installed where there is water lying between the forms or where the gravel is soft from rain. Concrete installed (unavoidably) during a rainstorm shall be covered by a waterproof material immediately.
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 - a. Street signs shall be provided at all street intersections and shall conform to the requirements of NYS Manual of Uniform Traffic Control Devices, and will be provided and installed by the Village of Churchville. All costs for signs and installation to be paid by the Developer.
- 11. **MONUMENTS** - Monuments shall be installed plumb, with the top set 1/4-inch below finished grade, at the locations shown on the approved final plans and staked out by a Licensed Surveyor. Fill the space around the monument with thoroughly compacted dry concrete.

I. RESTORATION

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- (2) The seed mixture shall be at least ninety-two percent (92%) purity with the following germination's:

Kentucky bluegrass: 80%.
Fescue: 85%.
Rye and redtop: 90%.

- (3) It shall be applied at a rate of four (4) pounds of seed per one thousand (1,000) square feet.

c. Mulch:

- (1) Straw mulch shall consist of stalks of oats, wheat, rye or other approved crops which are free of noxious weeds. Weight shall be calculated on the basis of the straw having not more 15% of moisture content

4. TRENCH SETTLEMENT

- a. After replacing the topsoil over the settled and graded trench, for all areas other than lawns and road shoulders, the Developer shall place fertilizer, seed and mulch in accordance with the following specification:

- (1) Fertilizer:

- (a) commercial 10-6-4 fertilizer applied at least twenty (20) pounds per one thousand (1,000) square feet.

- (2) Seed:

- (a) Fifty percent (50%) annual rye grass.
Fifty percent (50%) perennial rye grass.
- (b) Applied at four (4) pounds of seed per one thousand (1,000) square feet. The seed mixture shall be at least ninety-two percent (92%) purity with ninety percent (90%) germination.

- (3) Mulch:

- (a) Straw mulch shall consist of stalks of oats, wheat, rye or other approved crops which are free of noxious weeds. Weight shall be calculated on the basis of the straw having not more 15% of moisture content

5. Hydroseeding

- a. For hydroseeding the equipment shall be the tank type with agitator and sufficient hose to reach all disturbed areas. Seed, fertilizer and mulch may be mixed together and sown in one application. The mulch may be the type regularly used for this type of seeding operation.

-
- b. The Developer is responsible for obtaining a healthy growth of grass.

6 RESTORATION OF DRIVEWAYS

- a. Driveways shall be replaced in kind, whether gravel, stone or otherwise. Trench backfill under driveways shall be approved bank-run gravel tamped in layers or otherwise compacted to prevent later settlement. No driveways shall be left open overnight. Drives shall be maintained in a level, firm stable condition. Ruts, puddles, soft spots, bumps and depressions shall be immediately corrected.

Part V

**STANDARD
DETAILS & DRAWINGS**

VILLAGE OF CHURCHVILLE

LETTER OF CREDIT
SUMMARY SHEET

Based on Engineer's Estimate Dated: _____

Project Name: _____

Earthwork	\$\$\$	_____	
Contingency (10%)	\$\$\$	_____	
TOTAL EARTHWORK			\$ _____
Erosion Control Measures	\$\$\$	_____	
Contingency (10%)	\$\$\$	_____	
TOTAL EROSION CONTROL			\$ _____
Sewage Disposal Systems	\$\$\$	_____	
Contingency (10%)	\$\$\$	_____	
TOTAL SEWAGE DISPOSAL SYSTEMS			\$ _____
Drainage Systems	\$\$\$	_____	
Contingency (10%)	\$\$\$	_____	
TOTAL DRAINAGE SYSTEMS			\$ _____
Water Supply	\$\$\$	_____	
Contingency (10%)	\$\$\$	_____	
TOTAL WATER SUPPLY			\$ _____
Roadways	\$\$\$	_____	
Contingency (10%)	\$\$\$	_____	
TOTAL ROADWAYS			\$ _____
Electric Primary	\$\$\$	_____	
Contingency (10%)	\$\$\$	_____	
Street Lighting	\$\$\$	_____	
Contingency (10%)	\$\$\$	_____	
TOTAL ELECTRIC			\$ _____
Sub Total Construction Cost			\$ _____
Construction Observation			\$ _____
Road Signs & Clean Up			\$ _____
Design Engineering & Surveying Fees			\$ _____
TOTAL LETTER OF CREDIT			\$ _____

VILLAGE OF CHURCHVILLE

LETTER OF CREDIT RELEASE

PROJECT NAME _____

ESTIMATE NO. _____

DATE _____

PROJECT NO. _____

Total Construction To Date \$ _____

Less Retainage \$ _____

A. Construction Value To Be Released \$ _____

B. Engineering Costs \$ _____

C. Construction Observation Costs \$ _____

D. Other Costs \$ _____

Amount Previously Released Through Estimate No. _____ \$ _____

Amount Authorized For Release \$ _____

LETTER OF CREDIT INFORMATION

1) Original Amount
\$ _____

2) Authorized For Release Per Estimate Nos.

_____ \$ _____

_____ \$ _____

_____ \$ _____

_____ \$ _____

_____ \$ _____

Subtotal \$ _____

* Balance Remaining In Letter Of Credit Through This Statement

\$ _____

* The balance amount shall be sufficient to insure satisfactory completion of the remainder of the development.

Project Engineer

Date

Owner

Date

Municipal Engineer

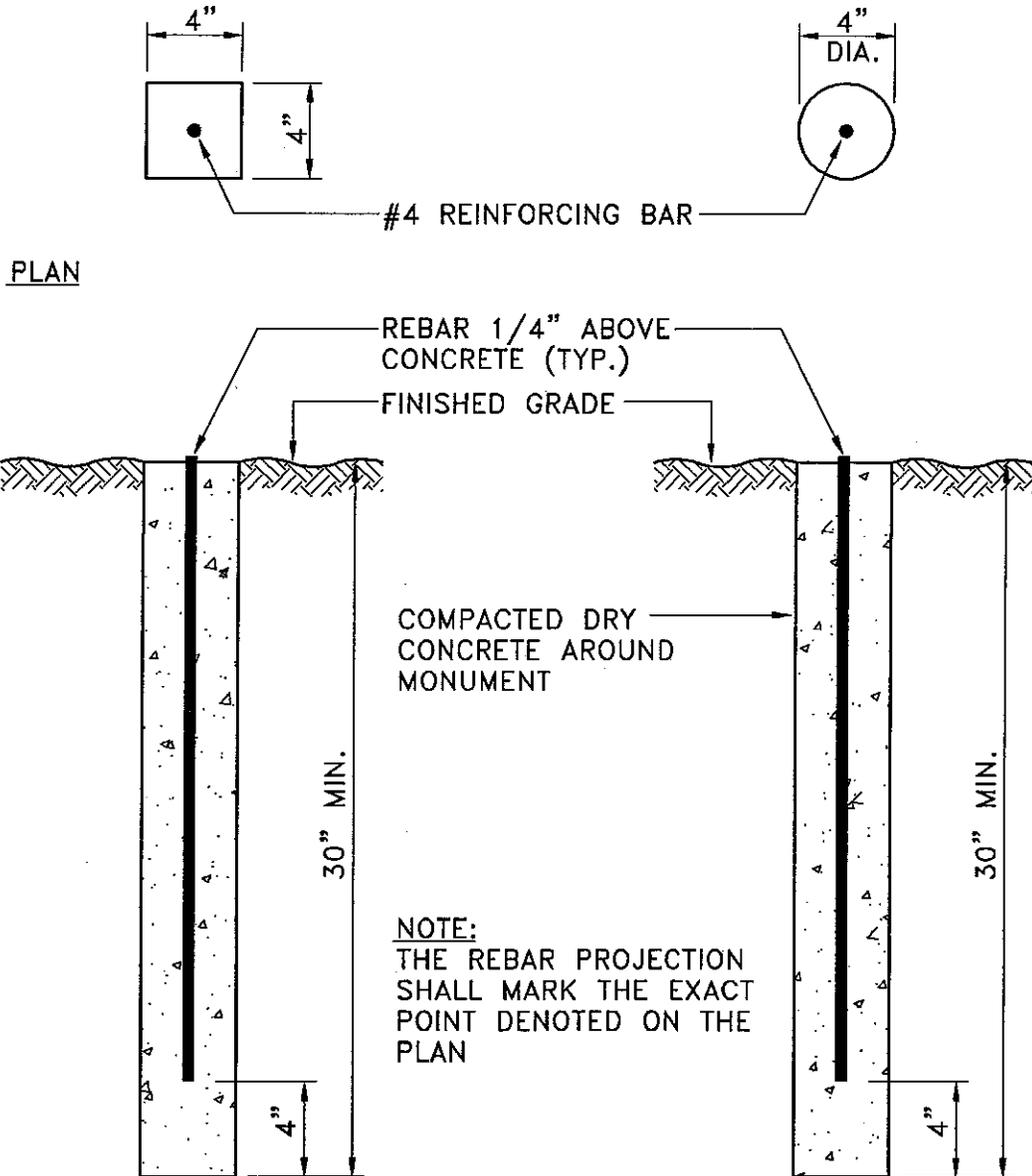
Date

Fiscal Officer

Date

LETTER OF CREDIT EXPIRES _____

TOWN OF CHURCHVILLE



SECTION

MONUMENT

(N.T.S.)

APPENDIX: G-4

DATE: JANUARY, 1998
REVISED JULY, 1998

MRB | *group*

ENGINEERING/ARCHITECTURE/SURVEYING, P.C.
2480 BROWNCROFT BLVD. ROCHESTER, N.Y. 14625

VILLAGE OF CHURCHVILLE

!! CALL !!

**BEFORE
YOU DIG, DRILL OR BLAST**

1-716-546-1100 & 1-800-962-7962

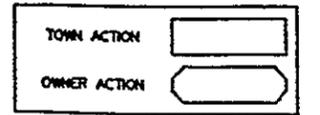
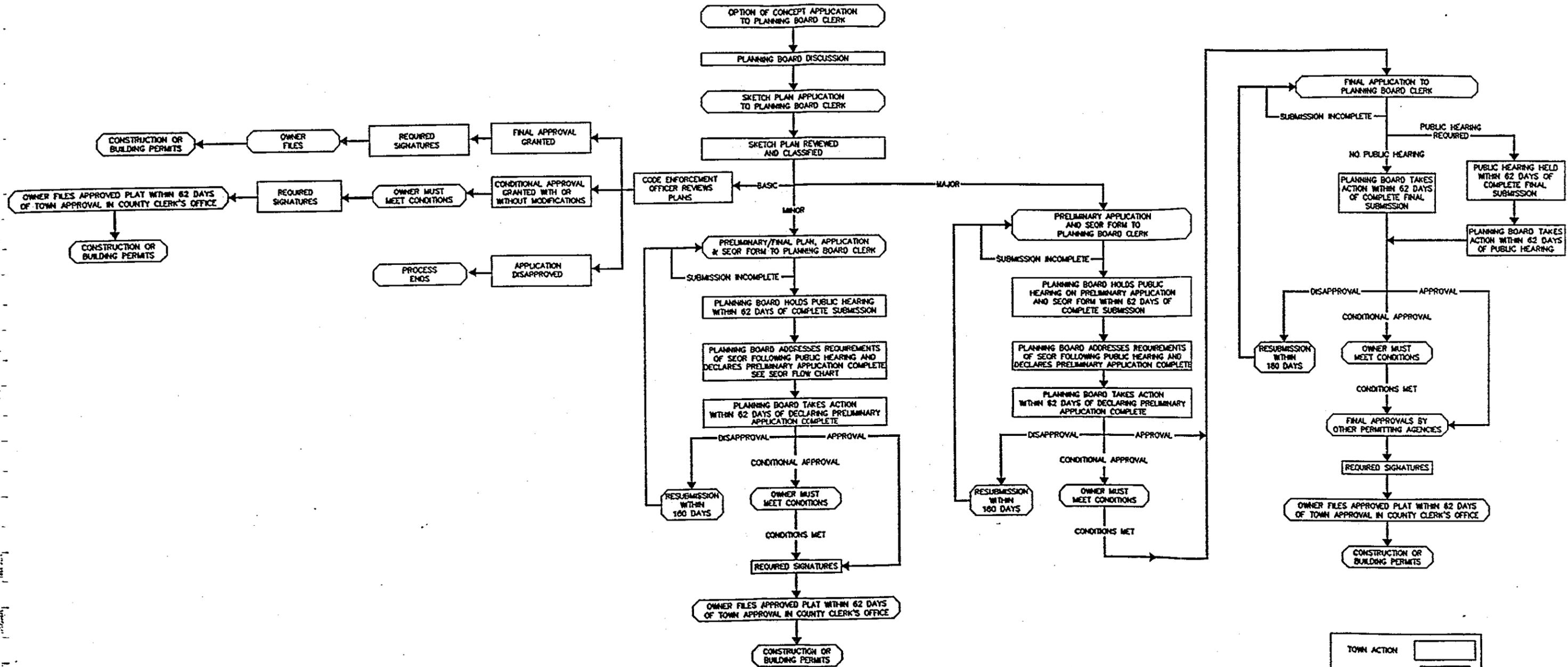
IN ACCORDANCE WITH UFPO (UNDERGROUND FACILITIES PROTECTIVE ORGANIZATION), CONTRACTORS MUST NOTIFY ALL UTILITIES IN THE AREA TWO (2) WORKING DAYS BEFORE EXCAVATION.

- THIS WILL NOTIFY – MONROE COUNTY WATER AUTHORITY
- ROCHESTER TELEPHONE
 - SPRINT
 - ROCHESTER GAS & ELECTRIC CORPORATION
 - AMERICAN TELEPHONE AND TELEGRAPH
 - BUCKEYE PIPE LINE COMPANY
 - CONSOLIDATED GAS SUPPLY CORPORATION
 - GENERAL TELEPHONE OF UPSTATE NEW YORK
 - METROPOLITAN WATER BOARD
 - MIDSTATE TELEPHONE CORPORATION
 - NEW YORK TELEPHONE
 - SUN PIPELINE COMPANY
 - TENNESSEE PIPELINE COMPANY

IN ADDITION, THE CONTRACTOR SHALL NOTIFY THE MUNICIPAL SEWER, ELECTRIC AND WATER DEPARTMENTS WITHIN THE PROJECT AREA.

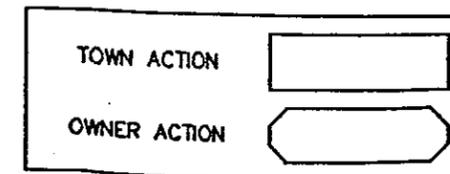
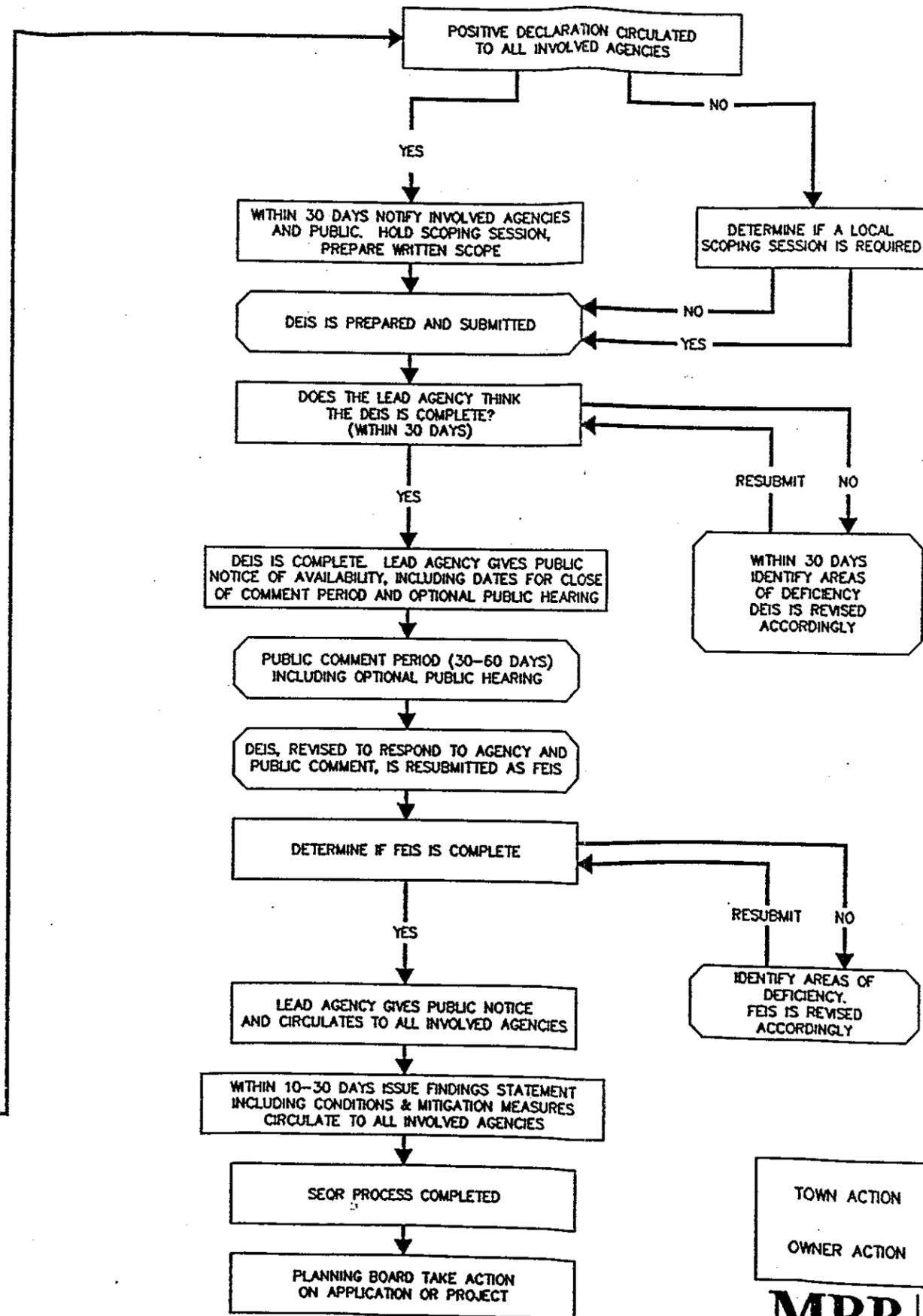
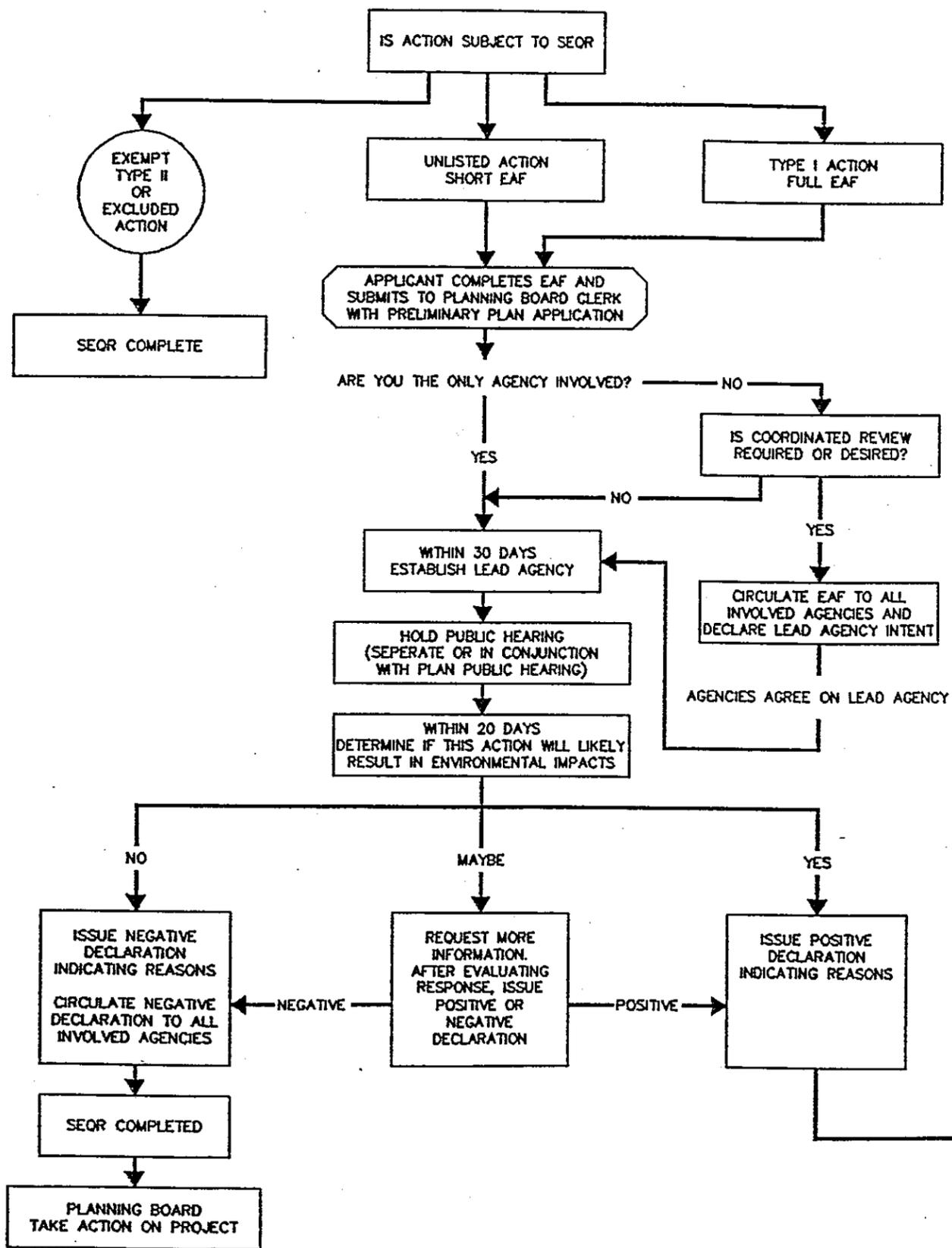
UTILITY NOTIFICATIONS

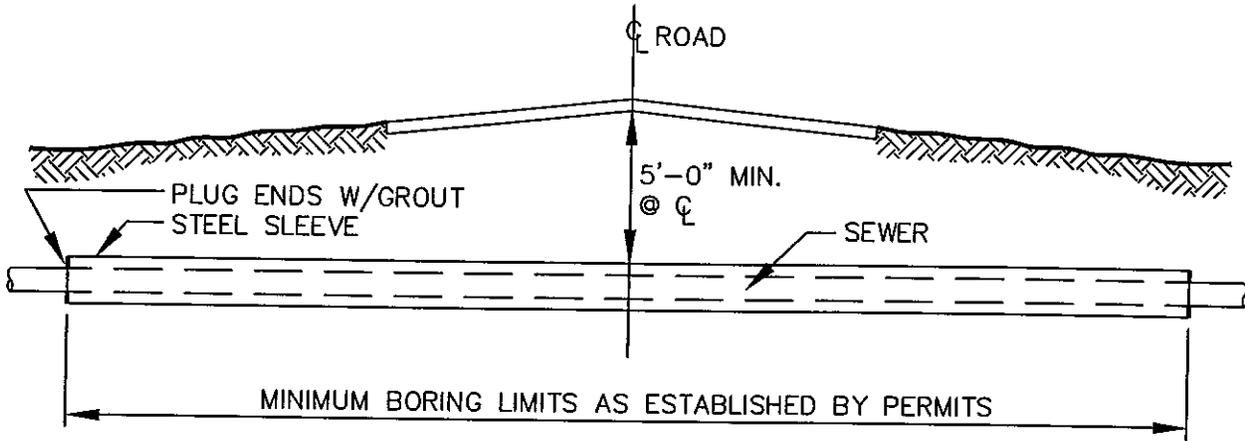
SUBDIVISION FLOW CHART



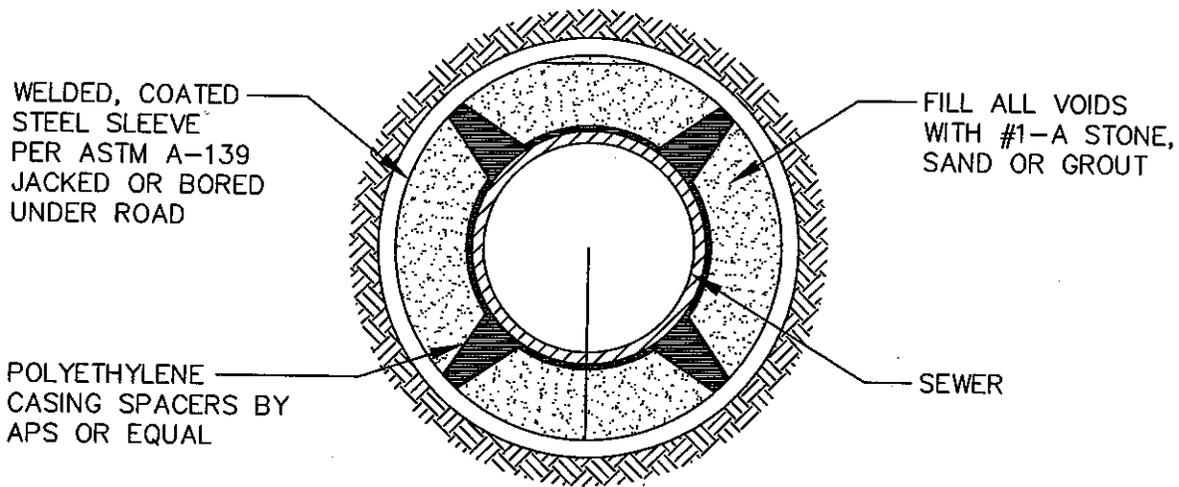
MRB | group

SEQR BASIC FLOW CHART





ELEVATION



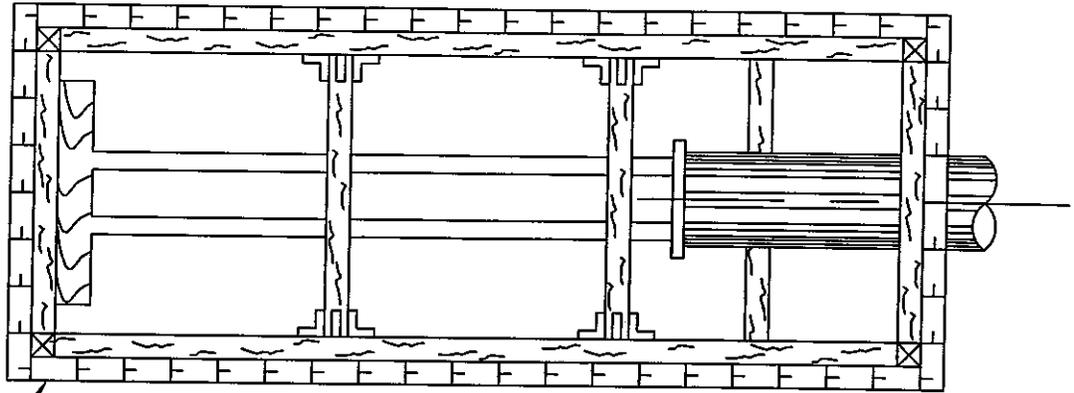
CROSS SECTION

SEWER SIZE	MINIMUM CASING O.D.	MIN. WALL THICKNESS FOR STEEL CASING
8"	16"	0.239"

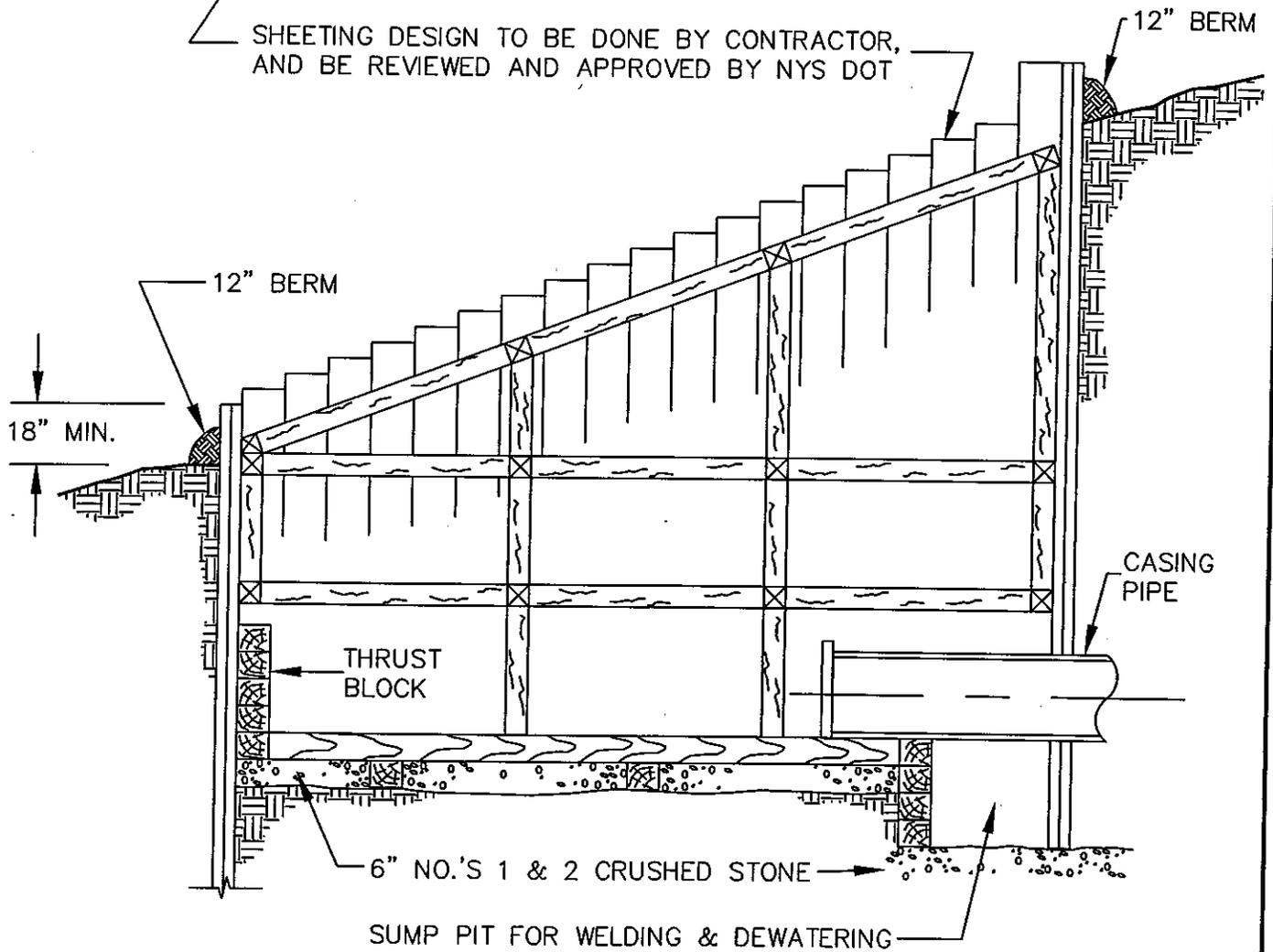
ROAD BORING FOR SEWER

(N.T.S.)

VILLAGE OF CHURCHVILLE



SHEETING DESIGN TO BE DONE BY CONTRACTOR,
AND BE REVIEWED AND APPROVED BY NYS DOT

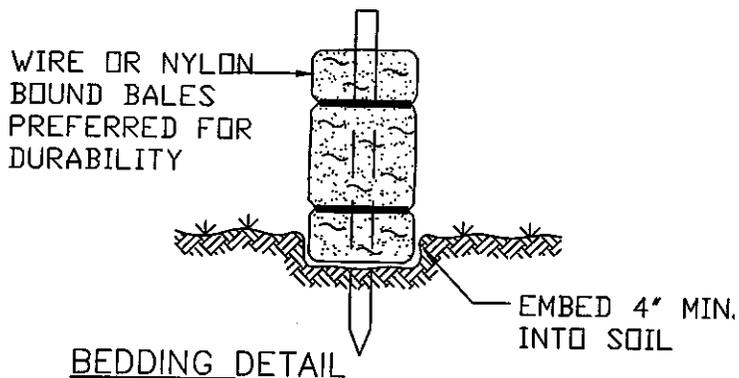
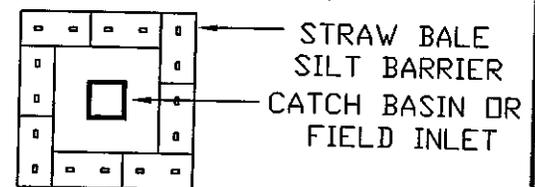
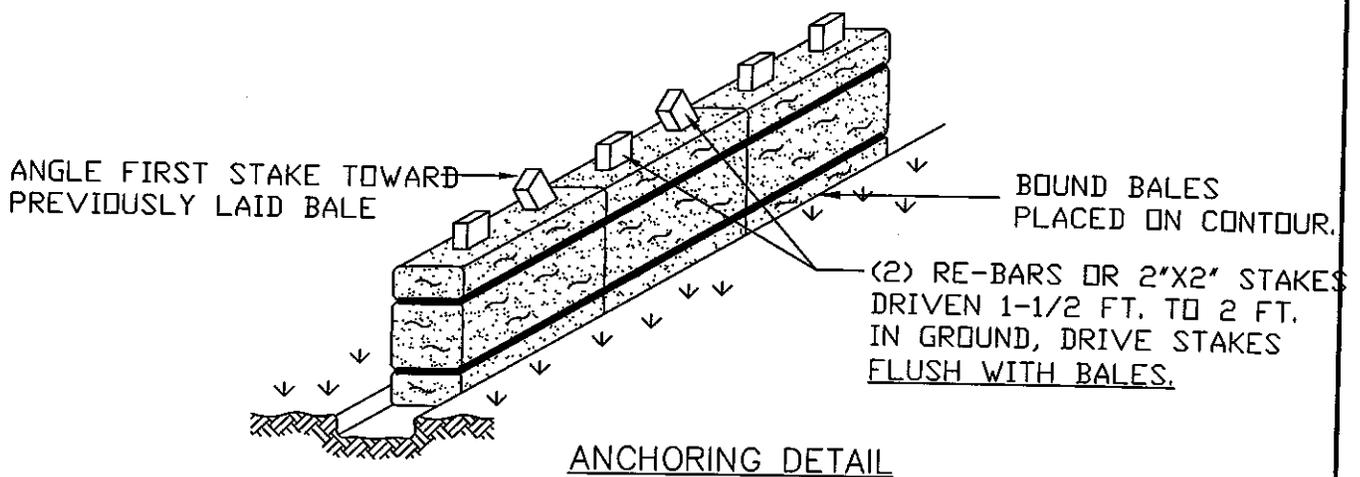


- NOTE:
1. ALL DIMENSIONS & MATERIAL SIZES MUST BE SHOWN
 2. 12" EARTH BERM TO BE PLACED AROUND SHEETING

TYPICAL BORING PIT DETAILS

N.T.S.

VILLAGE OF CHURCHVILLE

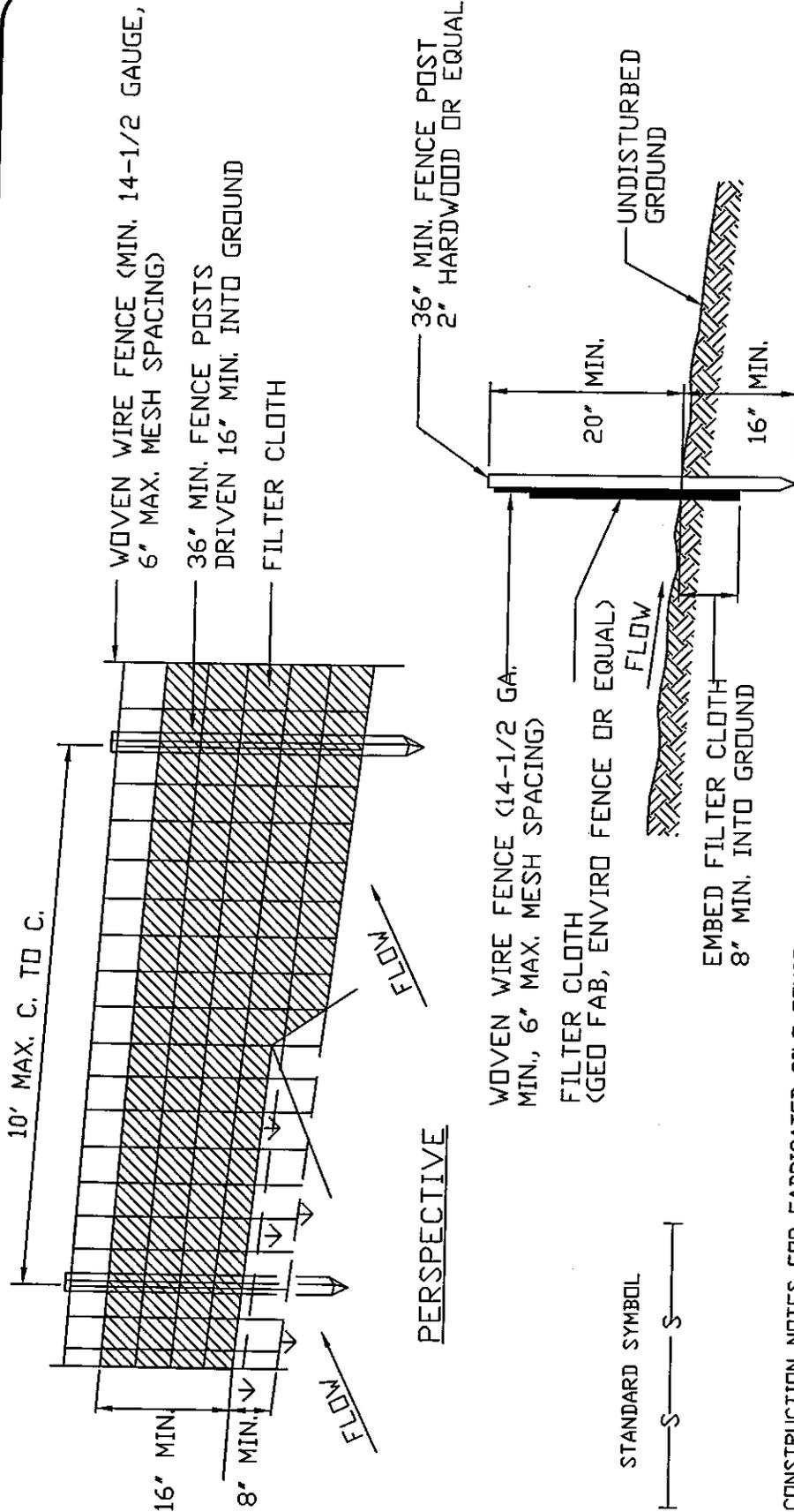
BEDDING DETAILCATCH BASIN DETAILANCHORING DETAIL

1. STRAW BALES SHALL BE PLACED AT THE TOE OF A SLOPE OR IN SWALE LINES AS SHOWN ON THE PLANS, WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
2. ALL CATCH BASIN INLETS SHALL BE SURROUNDED WITH STRAW BALES IMMEDIATELY FOLLOWING INSTALLATION.
3. EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF (4) INCHES, AND PLACED SO THE BINDINGS ARE HORIZONTAL.
4. BALES SHALL BE SECURELY ANCHORED IN PLACE BY EITHER (2) STAKES OR RE-BARS DRIVEN THROUGH THE BALE. THE FIRST STAKE IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE AT AN ANGLE TO FORCE THE BALES TOGETHER.
5. REPAIR AND OR REPLACEMENT OF BALES SHALL BE MADE PROMPTLY AS NEEDED TO CONTROL SITE RUNOFF.
6. STRAW BALES ARE FOR USE DURING CONSTRUCTION ONLY AND SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

STRAW BALE DETAIL

(N.T.S.)

VILLAGE OF CHURCHVILLE



CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

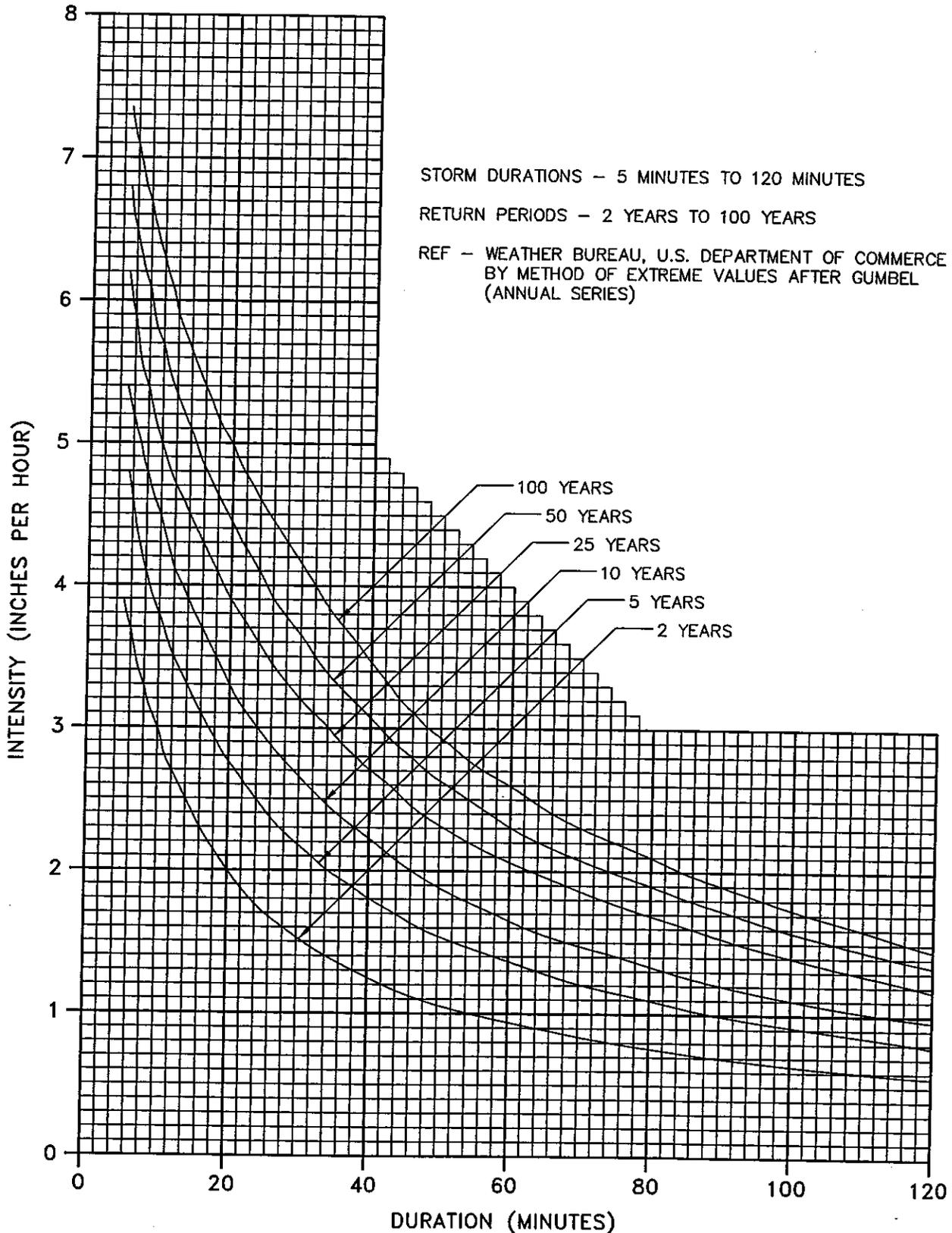
1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN 'BULGES' DEVELOP IN THE SILT FENCE.

POSTS: STEEL, EITHER T OR U TYPE OR 2" HARDWOOD
FENCE: WOVEN WIRE, 14-1/2 GAUGE, 6" MAX. MESH OPENING
FILTER CLOTH: FILTER X, MIRAFI 100X, STABILINKA T140N OR PREFABRICATED GEOTEX, ENVIROFENCE OR APPROVED EQUAL

SILT FENCE

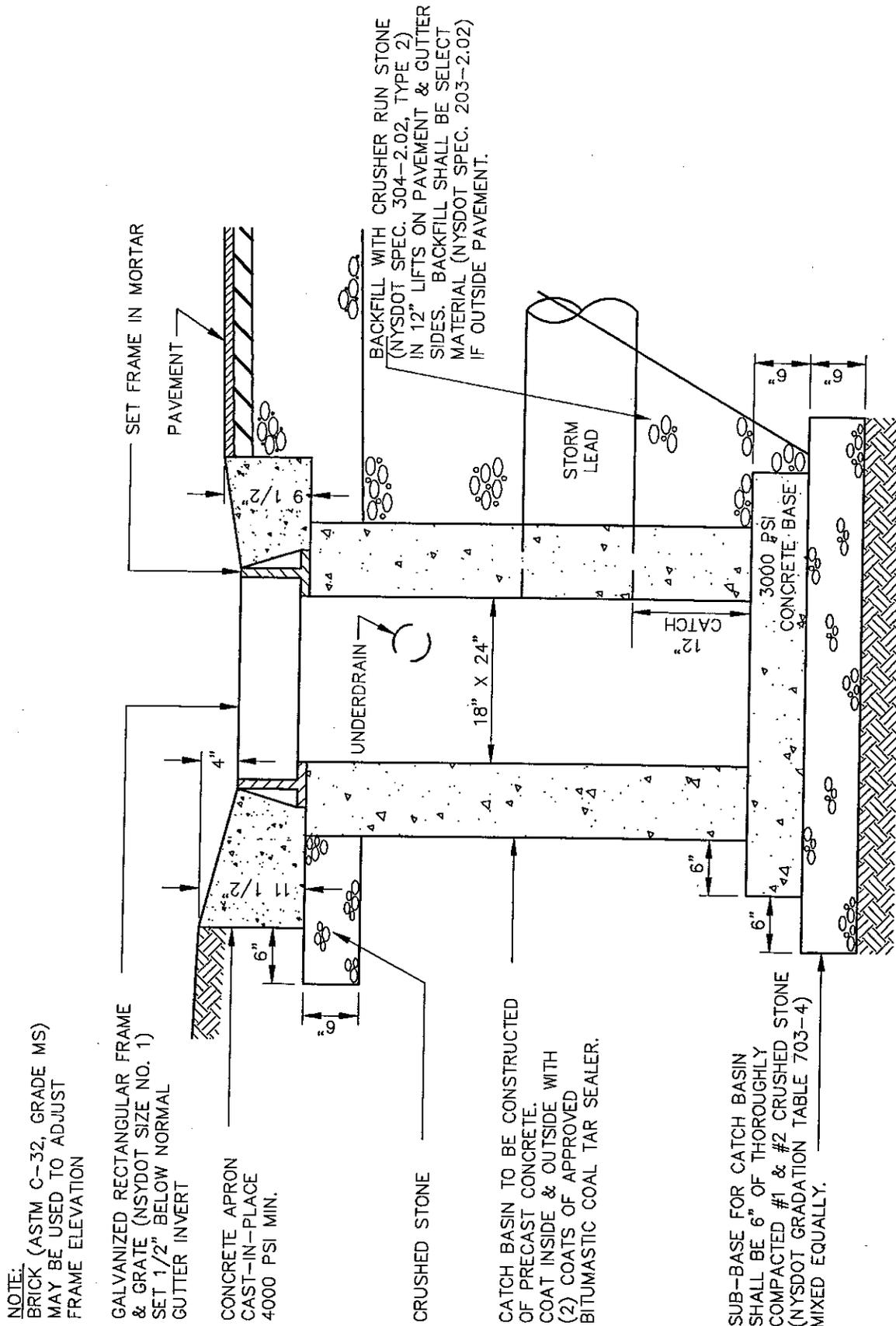
(N.T.S.)

VILLAGE OF CHURCHVILLE



RAINFALL INTENSITY CURVES

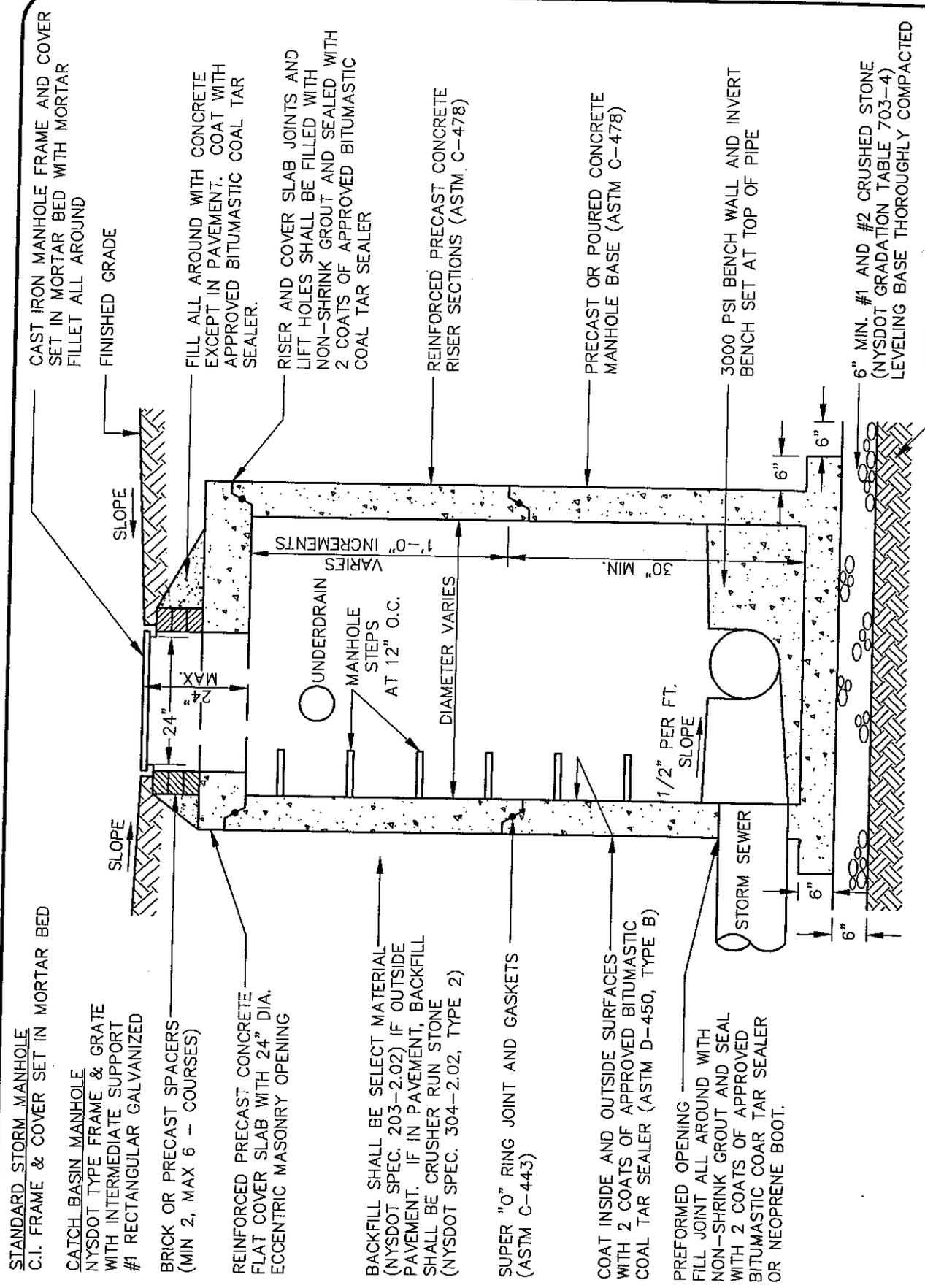
VILLAGE OF CHURCHVILLE



CATCH BASIN DETAIL

(N.T.S.)

VILLAGE OF CHURCHVILLE



STORM SEWER MANHOLE AND CATCH BASIN MANHOLE

(N.T.S.)

STANDARD STORM MANHOLE
 C.I. FRAME & COVER SET IN MORTAR BED

CATCH BASIN MANHOLE
 NYSDOT TYPE FRAME & GRATE
 WITH INTERMEDIATE SUPPORT
 #1 RECTANGULAR GALVANIZED

BRICK OR PRECAST SPACERS
 (MIN 2, MAX 6 - COURSES)

REINFORCED PRECAST CONCRETE
 FLAT COVER SLAB WITH 24" DIA.
 ECCENTRIC MASONRY OPENING

BACKFILL SHALL BE SELECT MATERIAL
 (NYSDOT SPEC. 203-2.02) IF OUTSIDE
 PAVEMENT. IF IN PAVEMENT, BACKFILL
 SHALL BE CRUSHER RUN STONE
 (NYSDOT SPEC. 304-2.02, TYPE 2)

SUPER "O" RING JOINT AND GASKETS
 (ASTM C-443)

COAT INSIDE AND OUTSIDE SURFACES
 WITH 2 COATS OF APPROVED BITUMASTIC
 COAL TAR SEALER (ASTM D-450, TYPE B)

PREFORMED OPENING
 FILL JOINT ALL AROUND WITH
 NON-SHRINK GROUT AND SEAL
 WITH 2 COATS OF APPROVED
 BITUMASTIC COAR TAR SEALER
 OR NEOPRENE BOOT.

CAST IRON MANHOLE FRAME AND COVER
 SET IN MORTAR BED WITH MORTAR
 FILLET ALL AROUND

FINISHED GRADE

FILL ALL AROUND WITH CONCRETE
 EXCEPT IN PAVEMENT. COAT WITH
 APPROVED BITUMASTIC COAL TAR
 SEALER.

RISER AND COVER SLAB JOINTS AND
 LIFT HOLES SHALL BE FILLED WITH
 NON-SHRINK GROUT AND SEALED WITH
 2 COATS OF APPROVED BITUMASTIC
 COAL TAR SEALER

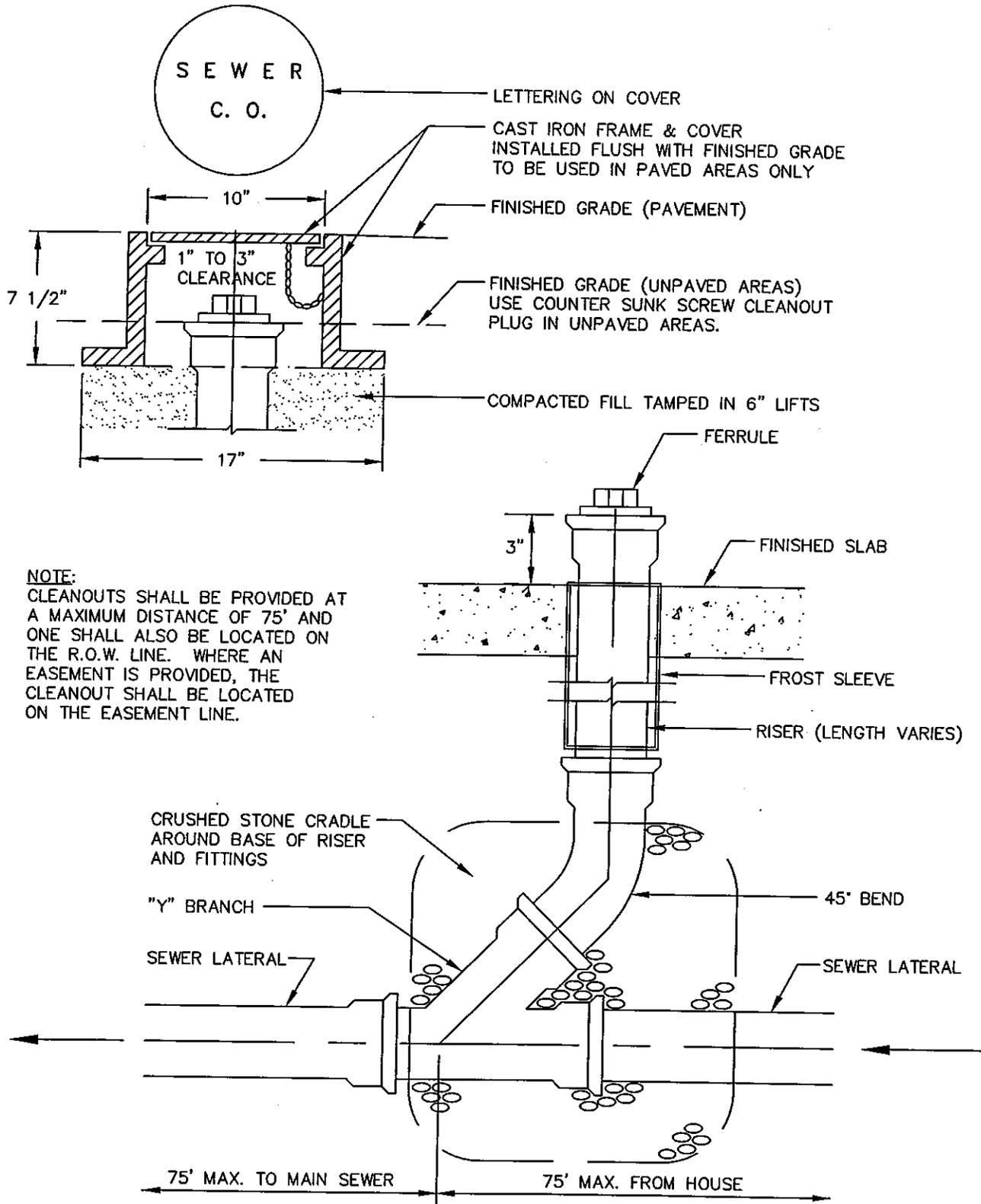
REINFORCED PRECAST CONCRETE
 RISER SECTIONS (ASTM C-478)

PRECAST OR POURED CONCRETE
 MANHOLE BASE (ASTM C-478)

3000 PSI BENCH WALL AND INVERT
 BENCH SET AT TOP OF PIPE

6" MIN. #1 AND #2 CRUSHED STONE
 (NYSDOT GRADATION TABLE 703-4)
 LEVELING BASE THOROUGHLY COMPACTED
 UNDISTURBED EARTH

VILLAGE OF CHURCHVILLE

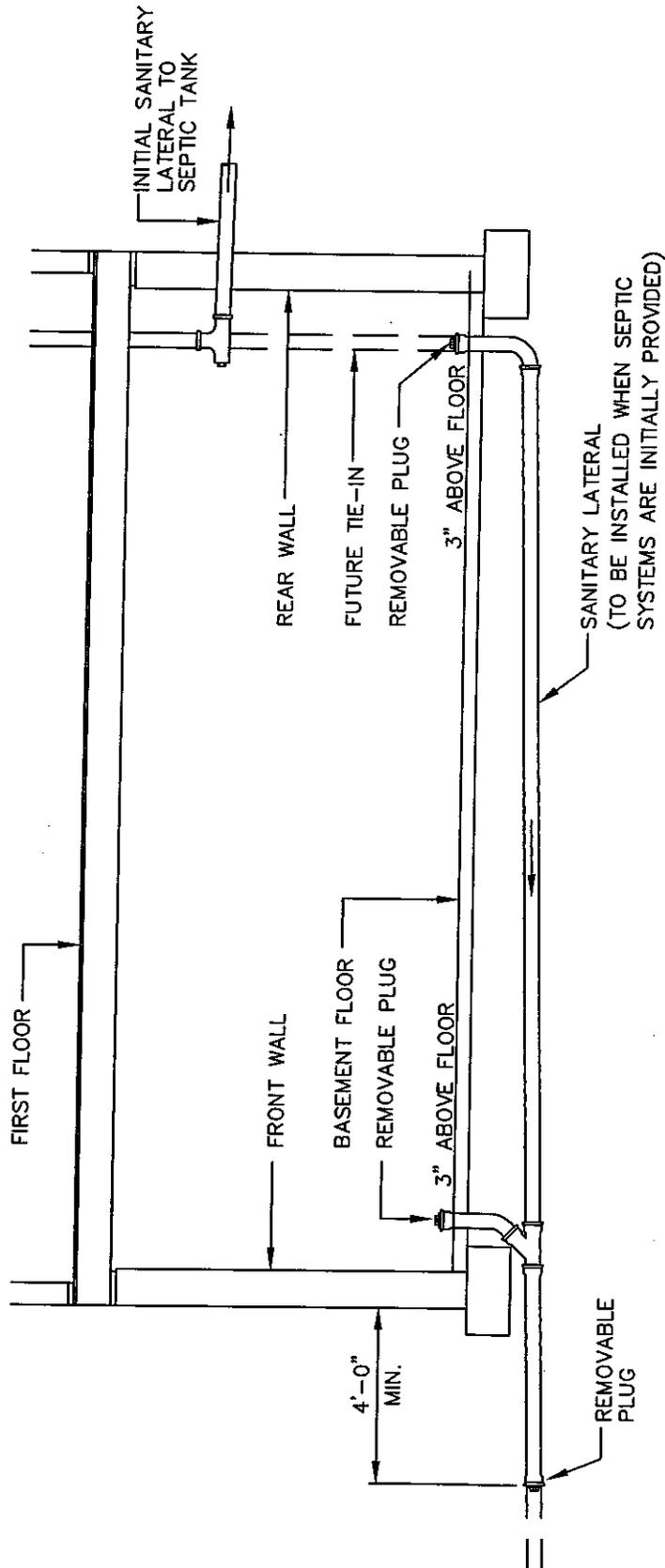


NOTE:
 CLEANOUTS SHALL BE PROVIDED AT
 A MAXIMUM DISTANCE OF 75' AND
 ONE SHALL ALSO BE LOCATED ON
 THE R.O.W. LINE. WHERE AN
 EASEMENT IS PROVIDED, THE
 CLEANOUT SHALL BE LOCATED
 ON THE EASEMENT LINE.

SANITARY CLEANOUT DETAIL

(N.T.S.)

VILLAGE OF CHURCHVILLE

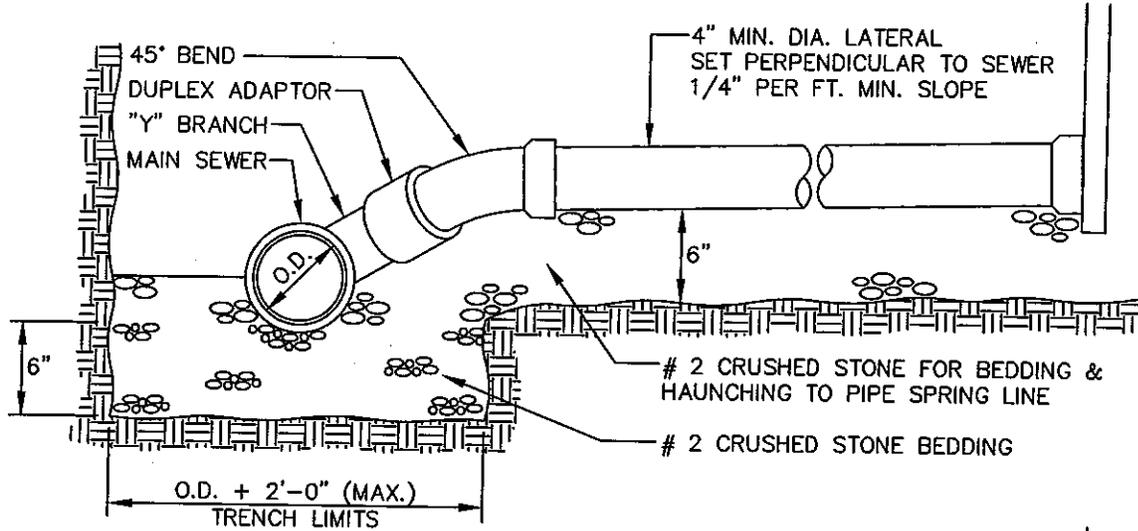


FUTURE SANITARY CONNECTION

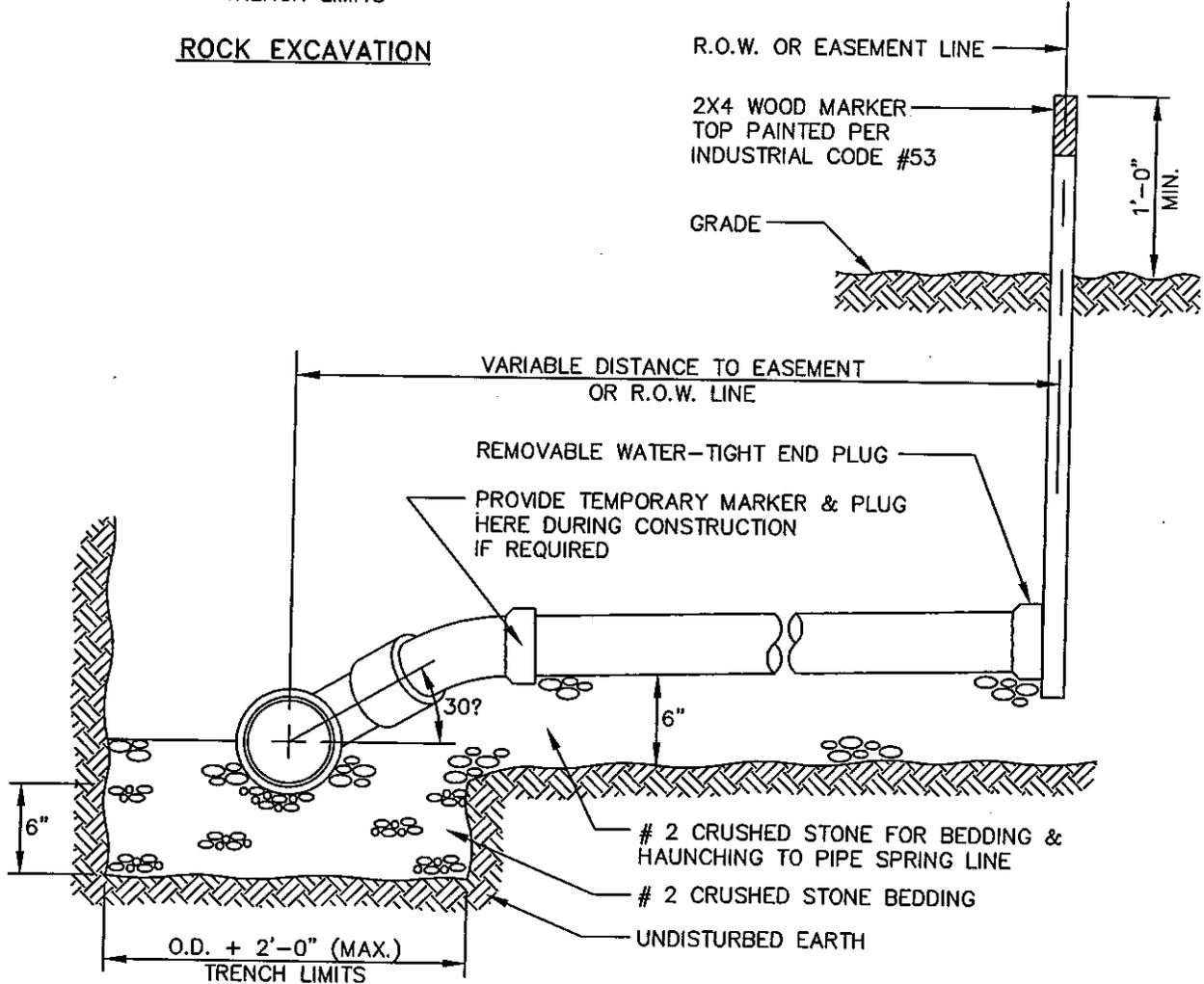
(THIS REQUIREMENT MAY BE WAIVED BY THE VILLAGE)

(N.T.S.)

VILLAGE OF CHURCHVILLE



ROCK EXCAVATION

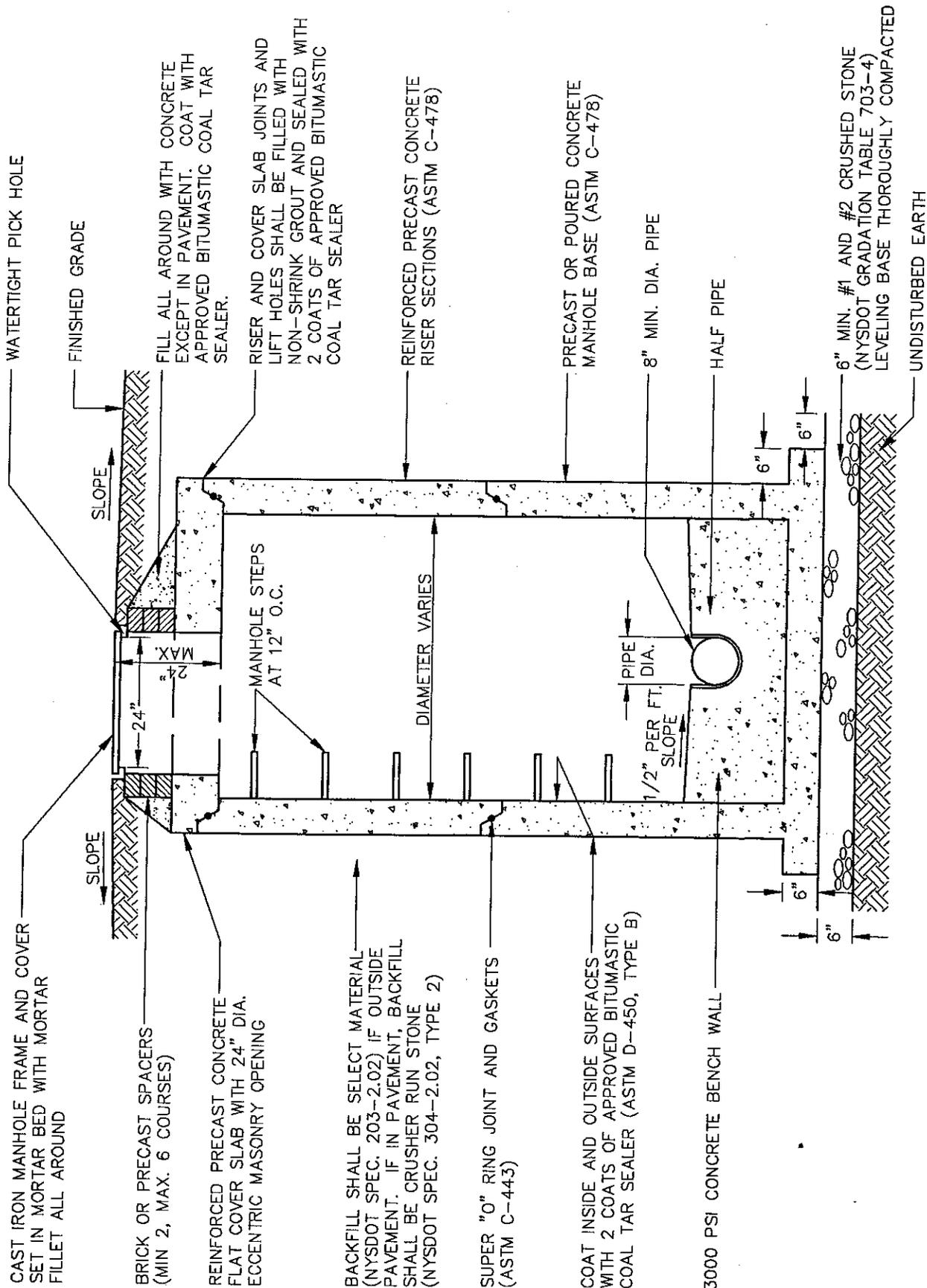


EARTH EXCAVATION

STORM AND SANITARY SEWER LATERAL DETAIL

(N.T.S.)

VILLAGE OF CHURCHVILLE



SANITARY SEWER MANHOLE

(GREATER THAN 4' DEEP)

(N.T.S.)

WATERTIGHT PICK HOLE

FINISHED GRADE

FILL ALL AROUND WITH CONCRETE EXCEPT IN PAVEMENT. COAT WITH APPROVED BITUMASTIC COAL TAR SEALER.

RISER AND COVER SLAB JOINTS AND LIFT HOLES SHALL BE FILLED WITH NON-SHRINK GROUT AND SEALED WITH 2 COATS OF APPROVED BITUMASTIC COAL TAR SEALER

REINFORCED PRECAST CONCRETE RISER SECTIONS (ASTM C-478)

PRECAST OR POURED CONCRETE MANHOLE BASE (ASTM C-478)

8" MIN. DIA. PIPE

HALF PIPE

6" MIN. #1 AND #2 CRUSHED STONE (NYSDOT GRADATION TABLE 703-4) LEVELING BASE THOROUGHLY COMPACTED UNDISTURBED EARTH

CAST IRON MANHOLE FRAME AND COVER SET IN MORTAR BED WITH MORTAR FILLET ALL AROUND

BRICK OR PRECAST SPACERS (MIN 2, MAX. 6 COURSES)

REINFORCED PRECAST CONCRETE FLAT COVER SLAB WITH 24" DIA. ECCENTRIC MASONRY OPENING

BACKFILL SHALL BE SELECT MATERIAL (NYSDOT SPEC. 203-2.02) IF OUTSIDE PAVEMENT. IF IN PAVEMENT, BACKFILL SHALL BE CRUSHER RUN STONE (NYSDOT SPEC. 304-2.02, TYPE 2)

SUPER "O" RING JOINT AND GASKETS (ASTM C-443)

COAT INSIDE AND OUTSIDE SURFACES WITH 2 COATS OF APPROVED BITUMASTIC COAL TAR SEALER (ASTM D-450, TYPE B)

3000 PSI CONCRETE BENCH WALL

SLOPE

SLOPE

MAX

2"

24"

MANHOLE STEPS AT 12" O.C.

DIAMETER VARIES

PIPE DIA.

1/2" PER FT. SLOPE

6"

6"

6"

6"

6"

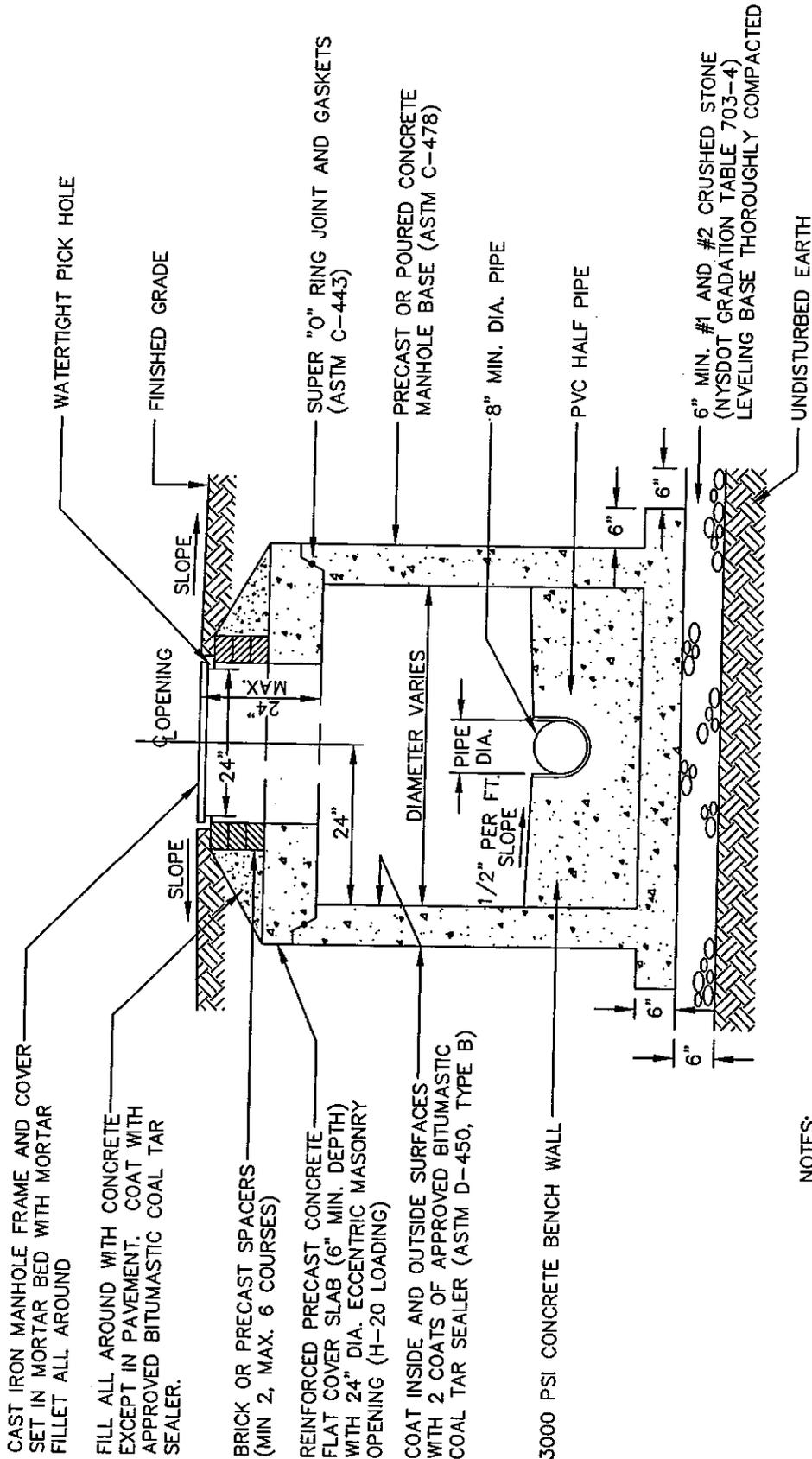
6"

6"

6"

6"

VILLAGE OF CHURCHVILLE



NOTES:

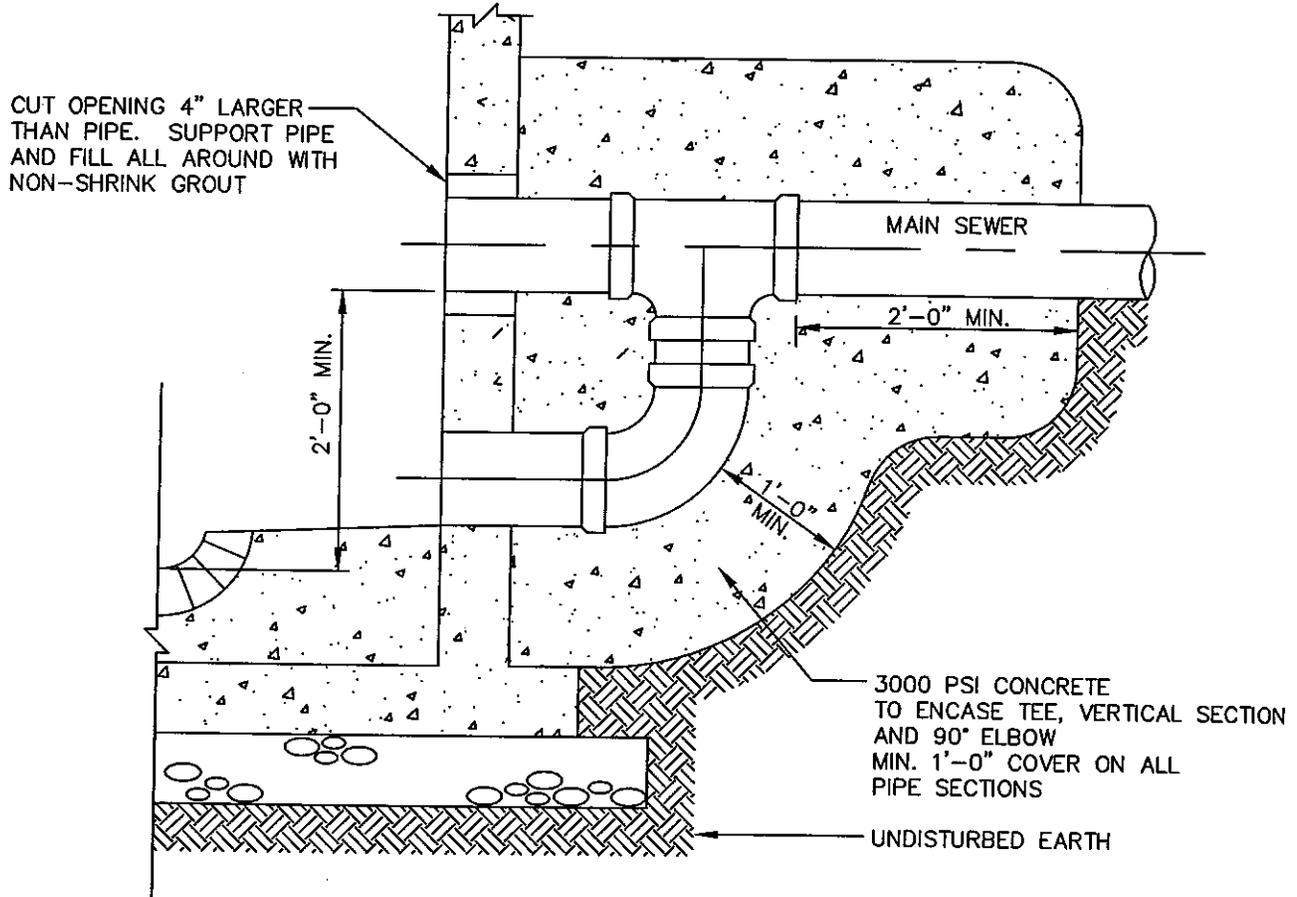
1. RISER AND COVER SLAB JOINTS AND LIFT HOLES SHALL BE FILLED WITH NON-SHRINK GROUT AND SEALED WITH 2 COATS OF APPROVED BITUMASTIC COAL TAR SEALER.
2. BACKFILL SHALL BE SELECT MATERIAL (NYSDOT SPEC. 230-2.02) IF OUTSIDE PAVEMENT. IF IN PAVEMENT, BACKFILL SHALL BE CRUSHER RUN STONE (NYSDOT SPEC. 304-2.02, TYPE 2)

SHALLOW SEWER MANHOLE

(LESS THAN 4' DEEP)

(N.T.S.)

VILLAGE OF CHURCHVILLE



NOTE:

1. SEWER MAIN, TEE AND DROP PIPE SHALL ALL BE THE SAME SIZE.
2. SEE SANITARY SEWER MANHOLE DETAIL FOR ALL OTHER CONSTRUCTION FEATURES NOT SHOWN.

**SANITARY SEWER
 DROP CONNECTION**

(N.T.S.)

VILLAGE OF CHURCHVILLE

GENERAL

All testing of gravity sewers shall be completed under the observation of the Town. The Contractor shall furnish all labor and testing equipment including hoses, pumps, plugs, temporary connections, gauges, etc. necessary to perform the required tests. Water for cleaning and testing shall be furnished by the Contractor through a metered connection as shown in Appendix W.

CLEANING

Each section of gravity sewer shall be flushed to remove all silt, sand, gravel and other debris prior to testing. If any sections of pipe cannot be flushed clean, mechanical methods shall be used to dislodge any deposits in the pipe.

TESTING GRAVITY SEWERS

- I. Air testing may be the method used for the final acceptance of each section of gravity sewer unless otherwise designated by the Town. Gravity sewers shall be tested in sections not exceeding 1,000 feet in length. Any section of gravity sewer which does not give satisfactory test results must be replaced and retested until a satisfactory test is completed.

AIR TEST: Low pressure air test may be used to test a section of sewer pipe or locate areas requiring replacement. The following procedures shall be used for low pressure air test.

1. The test shall be conducted between two (2) consecutive manholes.
2. The test section of the sewer line shall be plugged at each end. One of the plugs used at the manhole must be tapped and equipped for the air inlet connection for filling the line from the air compressor.
3. All service laterals, stubs and fittings into the sewer test section shall be properly capped or plugged and carefully braced against the internal pressure to prevent air leakage by slippage and blowouts.

CLEANING AND TESTING OF SANITARY SEWERS

VILLAGE OF CHURCHVILLE

4. Supply air to the test section slowly, filling the pipe line until a constant pressure of 4.0 PSIG is maintained. The air pressure shall be regulated to prevent the pressure inside the pipe from exceeding 5.0 PSIG.
5. When constant pressure of 4.0 PSIG is reached, throttle the air supply to maintain the internal pressure above 3.5 PSIG for at least five (5) minutes. This time permits the temperature of the entering air to equalize with the temperature of the pipe wall.
6. After the stabilization period, the air pressure shall be adjusted to 4.0 PSIG and the air supply disconnected. At 4.0 PSIG commence timing with a stop watch which is allowed to run until the line pressure drops to 3.5 PSIG at which time the stop watch shall be stopped. The time required for a pressure loss of 0.5 PSIG shall be compared to the following chart.

VILLAGE OF CHURCHVILLE

Any time which is less than shown in the following table shall be cause for rejection:

TIME REQUIREMENTS FOR AIR TESTING

PIPE SIZE (Inches)	TIME	
	(Minutes)	(Seconds)
4	2	32
6	3	50
8	5	6
10	6	22
12	7	39
14	8	56
15	9	35
16	10	12
18	11	34
20	12	45
21	13	30

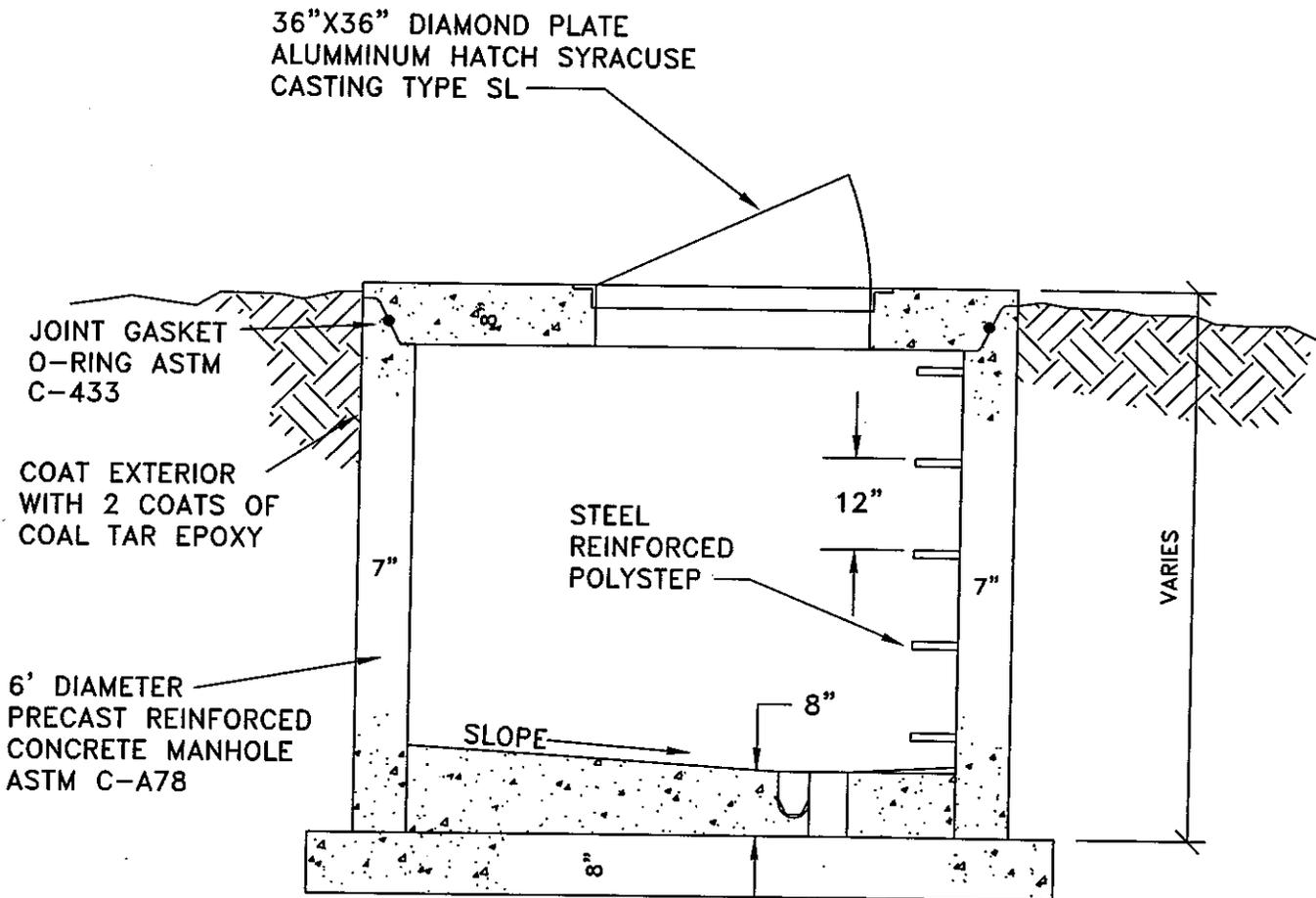
For larger diameter pipe: Minimum time in seconds =
462 x pipe diameter in feet

7. An air pressure correction shall be required when the prevailing ground water is above the sewer line being tested. Under this condition, the air test pressure shall be increased to 0.433 PSIG for each foot the ground water level is above the invert of the pipe.

II. Water Tests

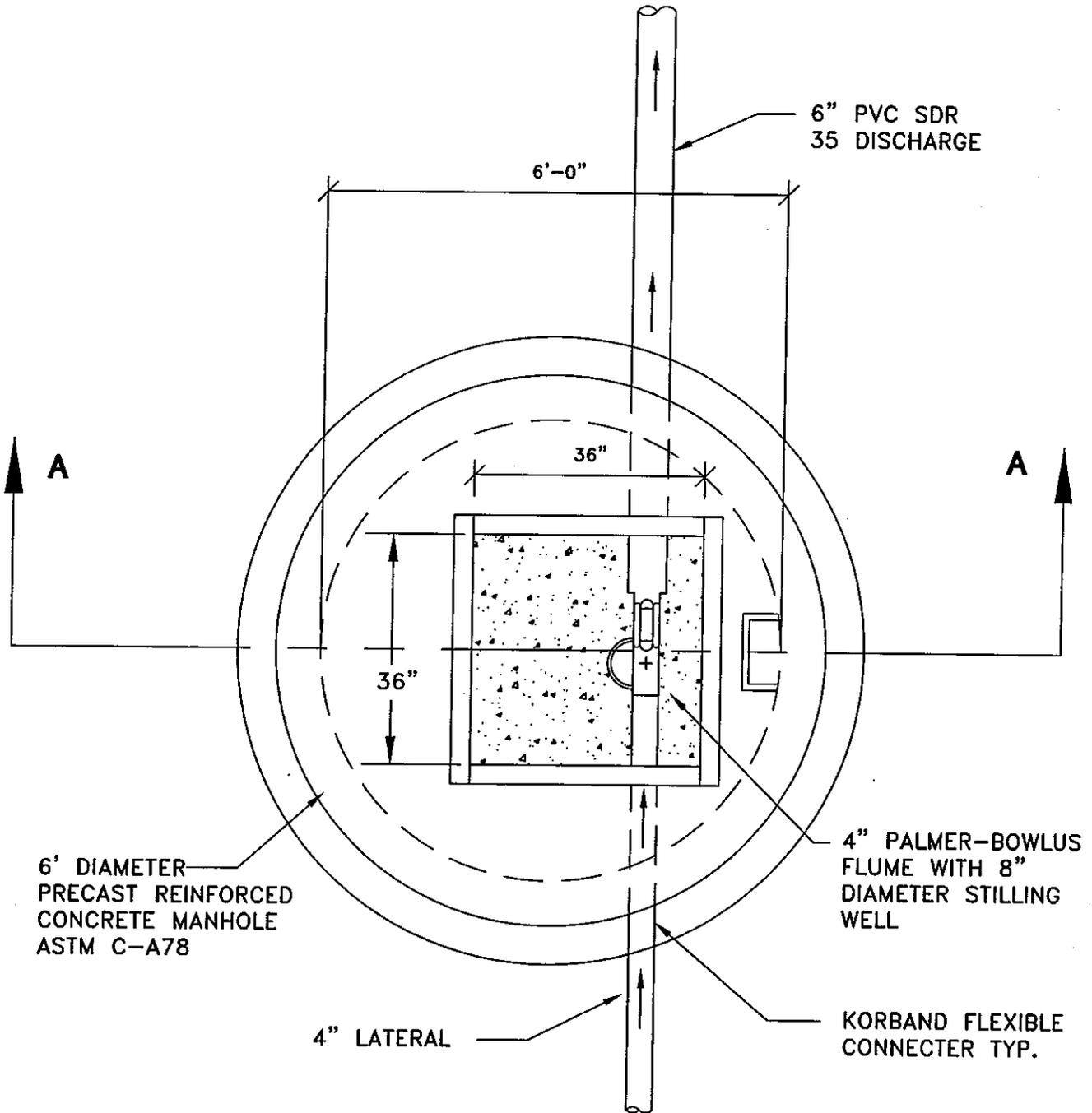
Leakage or infiltration shall not exceed 100 gallons per inch diameter per mile per day for any section tested. Leakage tests shall be conducted with a positive head of 10 ft. over the pipe invert for a period of 24 hours.

CLEANING AND TESTING OF SANITARY SEWERS



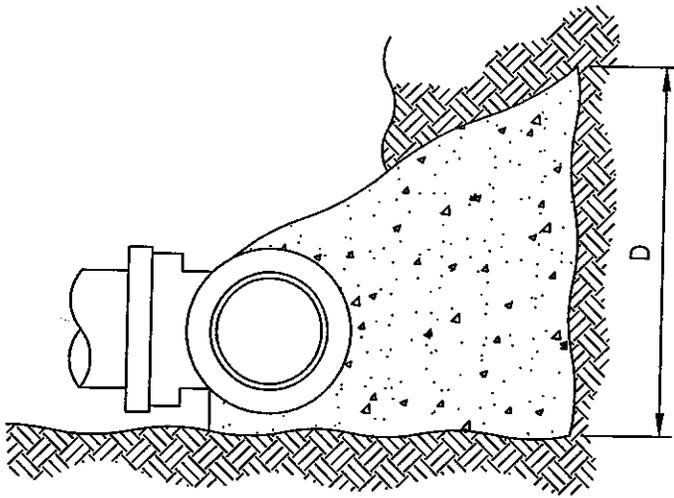
SECTION A-A

FLOW MEASURING MANHOLE

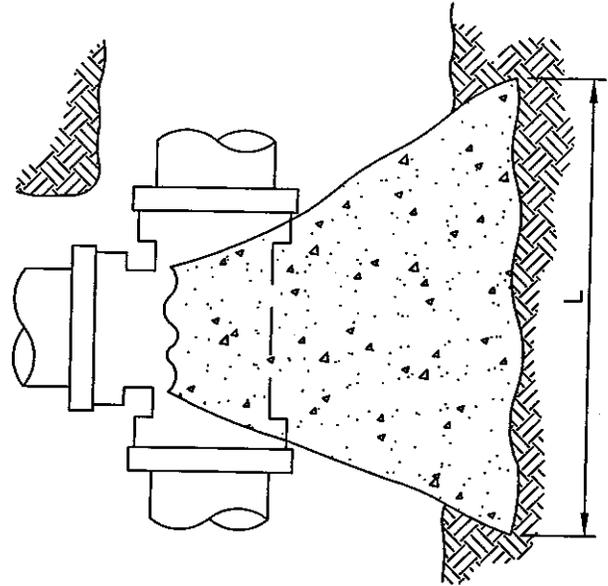


PLAN

VILLAGE OF CHURCHVILLE

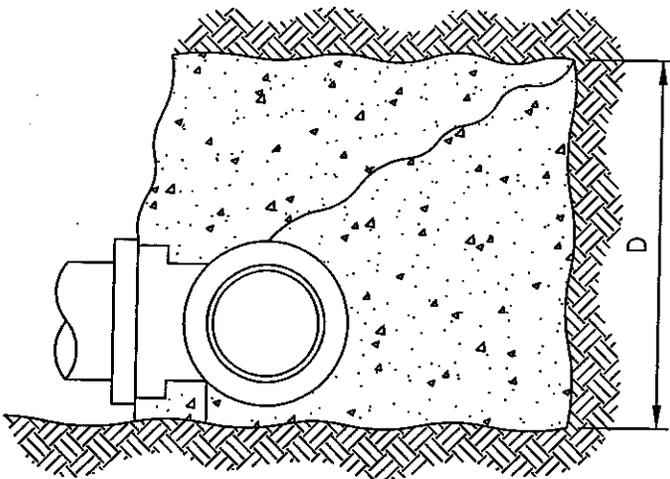


SECTION

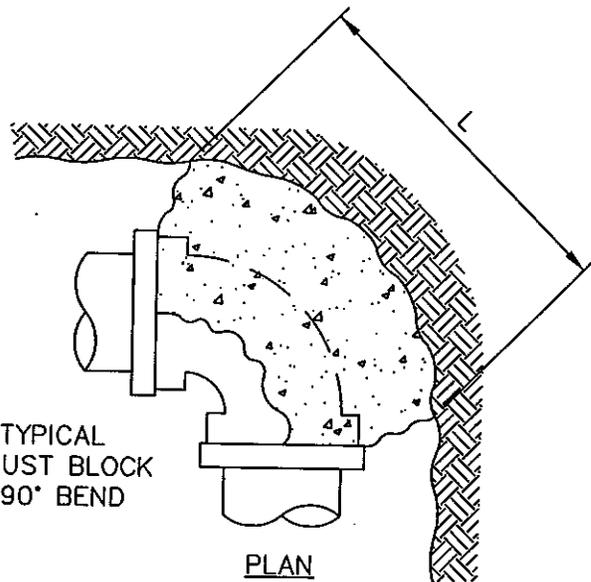


PLAN

TEE



SECTION



TYPICAL
THRUST BLOCK
-90° BEND

PLAN

BEND

THRUST BLOCK DETAIL

(N.T.S.)

VILLAGE OF CHURCHVILLE

NOTES:

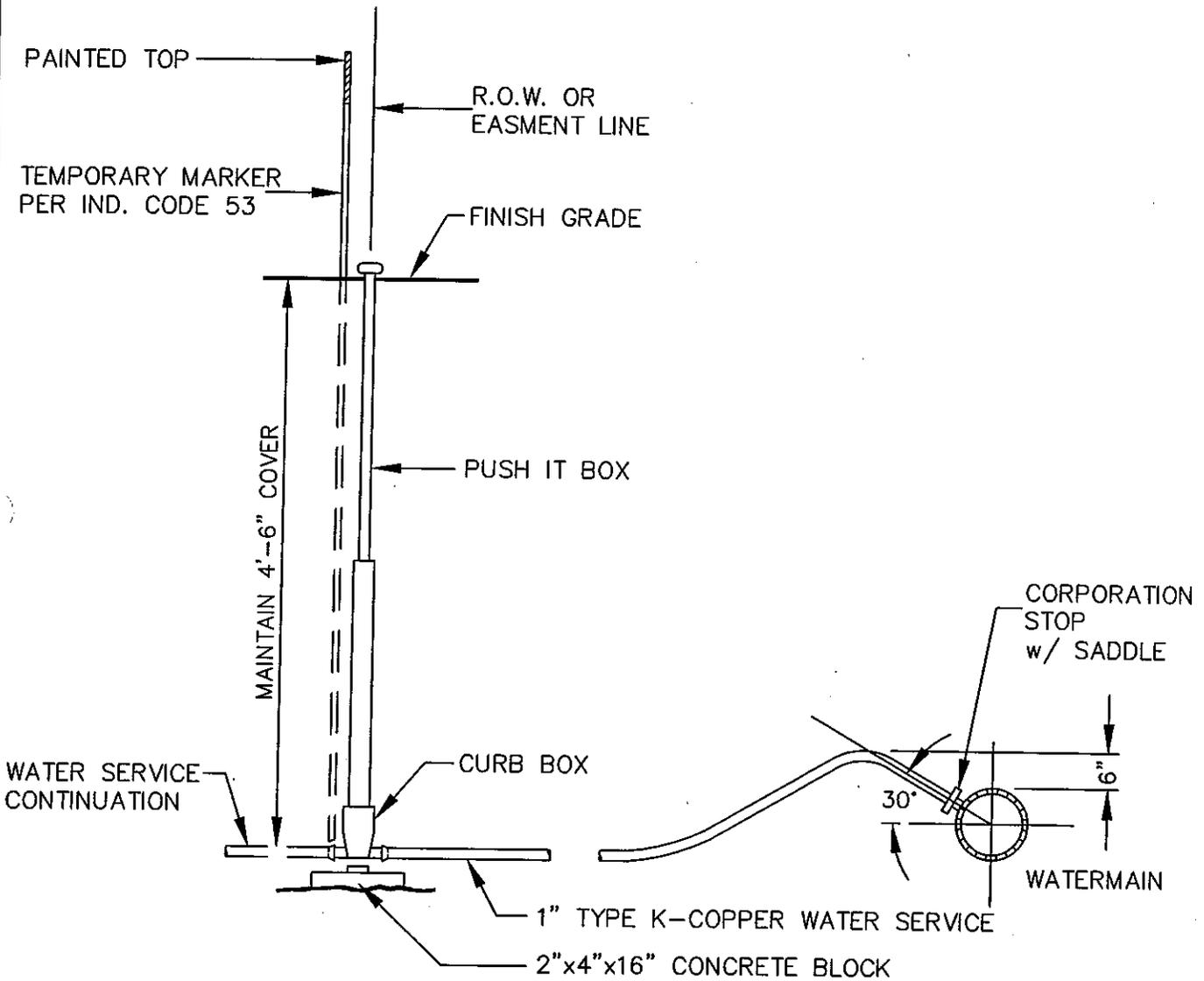
1. ALL DIMENSIONS ARE IN FEET.
2. BEARING AREAS ARE BASED ON ALLOWABLE SOIL BEARING PRESSURE OF 3000 PSF.
3. HEIGHT OF THRUST BLOCK SHOULD BE EQUAL TO OR LESS THAN 1/2 THE DEPTH FROM THE GROUND SURFACE TO THE BASE OF THE BLOCK.
4. ALL THRUST BLOCKS SHALL CURE A MINIMUM OF SEVEN (7) DAYS BEFORE ANY PRESSURE TESTS ARE CONDUCTED.

PIPE SIZE (INCHES)	WORKING PRESSURE (PSIG)	TEE OF PLUG		90° BEND		45° BEND		22-1/2° BEND	
		L	D	L	D	L	D	L	D
4	150	1.50	0.67	1.50	0.67	1.50	0.67	1.50	0.67
	250	1.50	0.67	1.67	0.75	1.50	0.67	1.50	0.67
6	150	1.67	0.75	2.00	1.00	1.50	0.67	1.50	0.67
	250	2.00	1.25	2.00	1.50	1.75	1.00	1.50	0.67
8	150	2.00	1.25	2.00	1.50	1.75	1.00	1.50	0.67
	250	2.25	1.75	3.00	2.00	2.00	1.50	1.67	1.00
10	150	2.00	1.75	2.50	2.00	1.75	1.50	1.67	1.00
	250	3.00	2.00	3.67	2.50	2.50	2.00	1.75	1.50
12	150	2.50	2.00	3.00	2.50	2.25	1.75	1.75	1.25
	250	3.67	2.50	4.00	3.00	3.00	2.33	2.00	1.75
14	150	3.00	2.33	4.00	2.50	2.75	2.00	2.00	1.50
	250	4.00	3.00	5.00	3.50	3.75	2.67	2.50	2.00
16	150	3.75	2.67	5.00	3.00	3.00	2.50	2.25	1.75
	250	5.00	3.25	6.00	3.50	4.00	3.00	3.25	2.00
18	150	4.00	3.00	5.50	3.25	3.67	2.50	2.50	2.00
	250	6.00	3.33	7.00	4.00	5.00	3.25	3.50	2.50
20	150	5.00	3.00	6.00	3.50	4.00	2.75	3.00	2.00
	250	6.50	4.00	8.00	4.50	6.00	3.25	4.00	2.50
24	150	6.00	3.33	7.00	4.25	5.00	3.25	3.67	2.50
	250	8.00	4.50	9.00	5.50	6.50	4.00	5.00	3.00

THRUST BLOCK DETAIL

(N.T.S.)

VILLAGE OF CHURCHVILLE

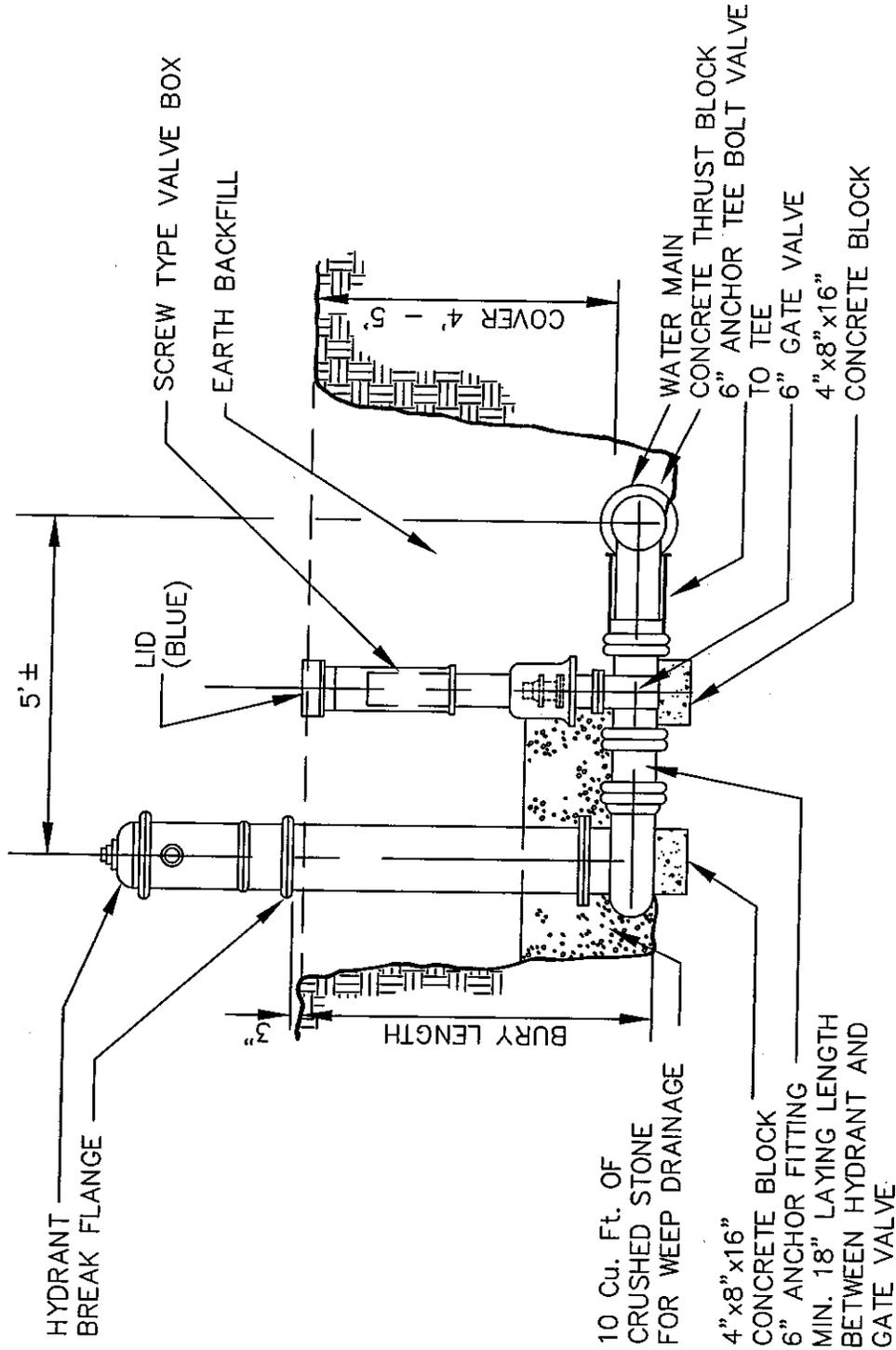


NOTE: COPPER SERVICES SHALL BE ENCASED ALL AROUND WITH SELECT EARTH.

WATER SERVICE DETAIL

(N.T.S.)

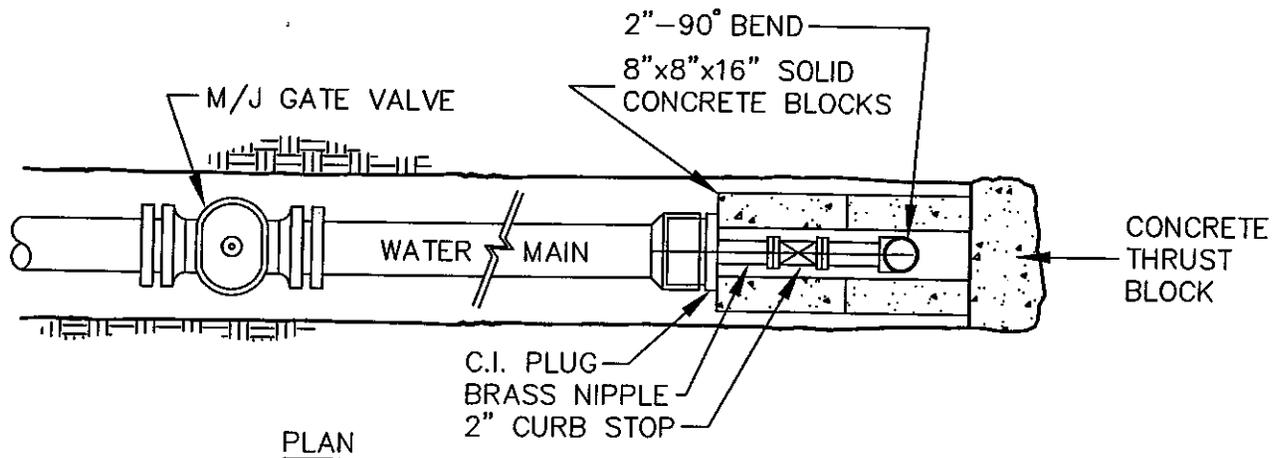
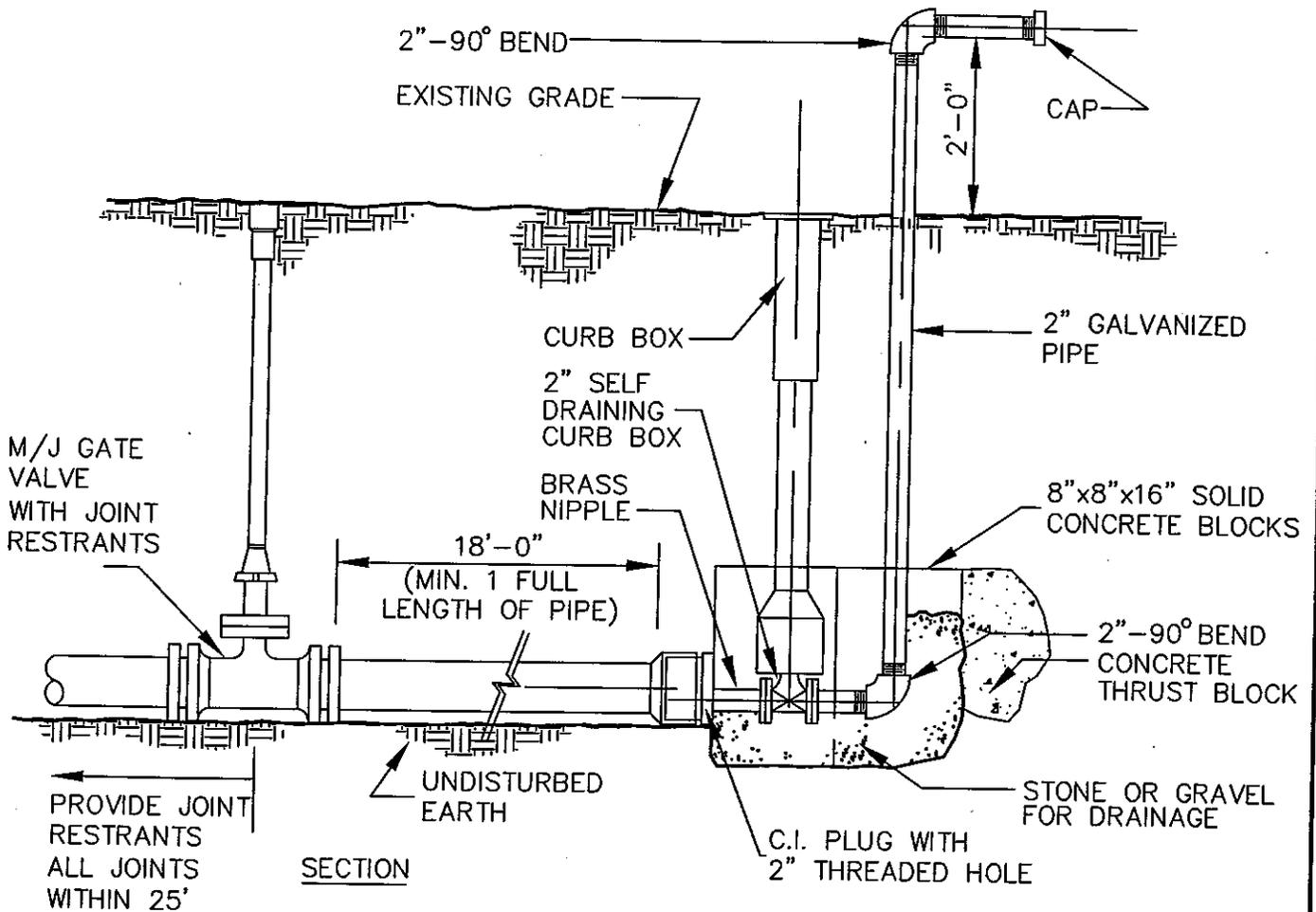
VILLAGE OF CHURCHVILLE



HYDRANT UNIT DETAIL

N.T.S.

VILLAGE OF CHURCHVILLE



PLUG, BLOCK & BLOW-OFF DETAIL

N.T.S.

VILLAGE OF CHURCHVILLE

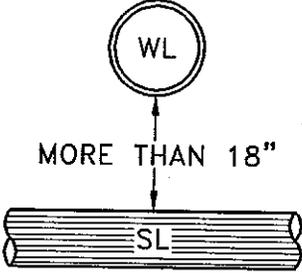
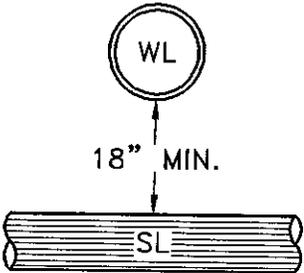
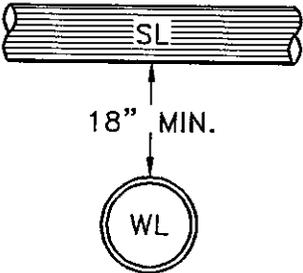
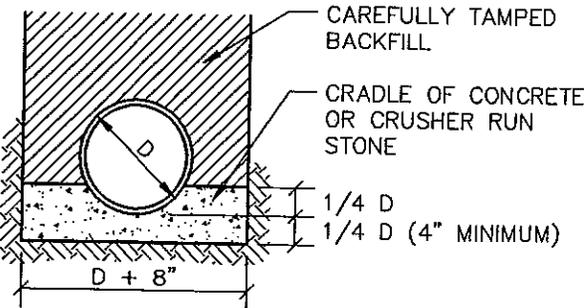
		TEST PRESSURE (P.S.I.)					
		100	125	150	175	200	225
		PIPE DIA. (INCHES)	ALLOWABLE LEAKAGE (G.P.H.)				
			D.I.P. PER 1,000 L.F. OF LINE	6	0.45	0.50	0.55
8	0.60	0.67		0.74	0.80	0.85	0.90
10	0.75	0.84		0.92	0.99	1.06	1.13
12	0.90	1.01		1.10	1.19	1.28	1.35
P.V.C. PER 1,000 L.F. OF LINE	6	0.41	0.45	0.50	0.53	0.57	0.61
	8	0.54	0.60	0.66	0.71	0.76	0.81
	10	0.68	0.75	0.83	0.90	0.96	1.02
	12	0.81	0.89	0.99	1.07	1.15	1.22

NOTES:

1. PRESSURE TESTS SHALL BE CONDUCTED SO THE PIPE SECTIONS ARE WITHIN 10 PSI OF THE TEST PRESSURE LOCATION.
2. PRESSURE TESTS SHALL BE CONDUCTED FOR A MINIMUM OF 2 HOURS.
3. LEAKAGE TESTS AT LINE PRESSURE SHALL BE CONDUCTED OVER A 24 HOUR PERIOD.

WATERMAIN PRESSURE TEST

VILLAGE OF CHURCHVILLE

CONDITION	SCHEMATIC	REQUIREMENTS
<p>I WATER LINE ABOVE SEWER LINE</p>		<p>A) WATER LINE AND SEWER LINE PIPE LENGTHS TO BE CENTERED AT CROSSING. EACH LENGTH OF PIPE TO BE 10 FT. MINIMUM.</p> <p>B) BACKFILL WITH COMPACTED CRUSHER RUN STONE.</p>
<p>II WATER LINE ABOVE SEWER LINE</p>		<p>A) WATER LINE AND SEWER LINE PIPE LENGTHS TO BE CENTERED AT CROSSING. EACH LENGTH OF PIPE TO BE 10 FT. MINIMUM.</p> <p>B) WHEN BOTH WATER LINE AND SEWER LINE ARE NEW, SLEEVE SEWER LINE WITH STEEL CASING FOR 10 FT. EACH SIDE OF CROSSING.</p> <p>WHEN ONE LINE IS EXISTING, SLEEVE PIPE BEING INSTALLED WITH STEEL CASING FOR 10 FT. EACH SIDE OF CROSSING.</p> <p>C) BACKFILL WITH COMPACTED CRUSHER RUN STONE.</p>
<p>III SEWER LINE ABOVE WATER LINE</p>		<p>A) WATER LINE AND SEWER LINE PIPE LENGTHS TO BE CENTERED AT CROSSING. EACH LENGTH OF PIPE TO BE 10 FT. MINIMUM.</p> <p>B) SLEEVE SEWER LINE WITH STEEL CASING FOR 10 FT. EACH SIDE OF CROSSING.</p> <p>C) PROVIDE CRADLE OF CONCRETE OR CRUSHER RUN STONE (SEE TRENCH DETAIL BELOW) FOR WATER LINE AND SEWER LINE FOR 10 FT. EACH SIDE OF CROSSING.</p>
<p style="text-align: center;">NOTES</p> <p>WL (WATER LINE)</p> <p>SL (SEWER LINE)</p> <p>D (OUTSIDE DIAMETER OF PIPE)</p> <p>IN NO CASE SHALL PIPES BE CLOSER THAN 18" APART. DISTANCES ARE MEASURED BETWEEN OUTSIDES OF PIPE.</p>		

WATERMAIN/SEWER CROSSING DETAIL

(N.T.S.)

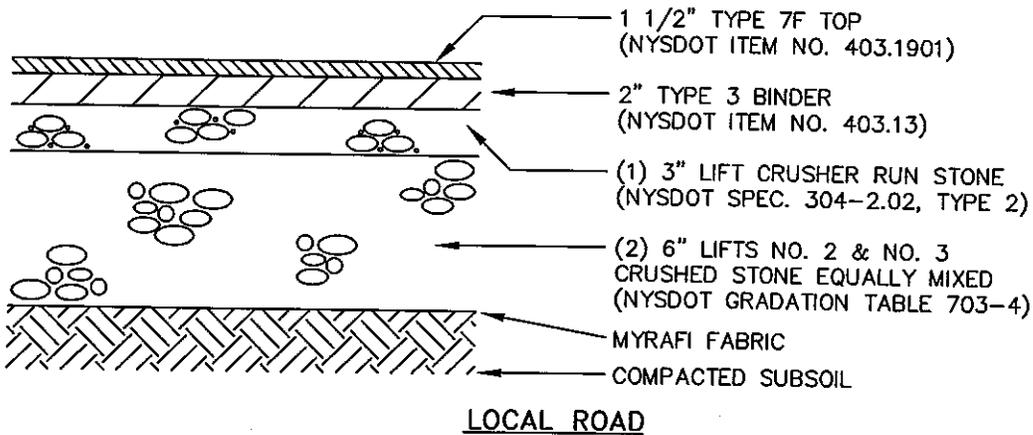
APPENDIX: SR-1

DATE: JANUARY, 1998
JULY, 1998

MRB | group

ENGINEERING/ARCHITECTURE/SURVEYING, P.C.
2480 BROWNCROFT BLVD. ROCHESTER, N.Y. 14625

VILLAGE OF CHURCHVILLE



NOTE: ALL DEPTHS ARE COMPACTED THICKNESSES

PAVEMENT CROSS SECTION (TYP.)

(N.T.S.)

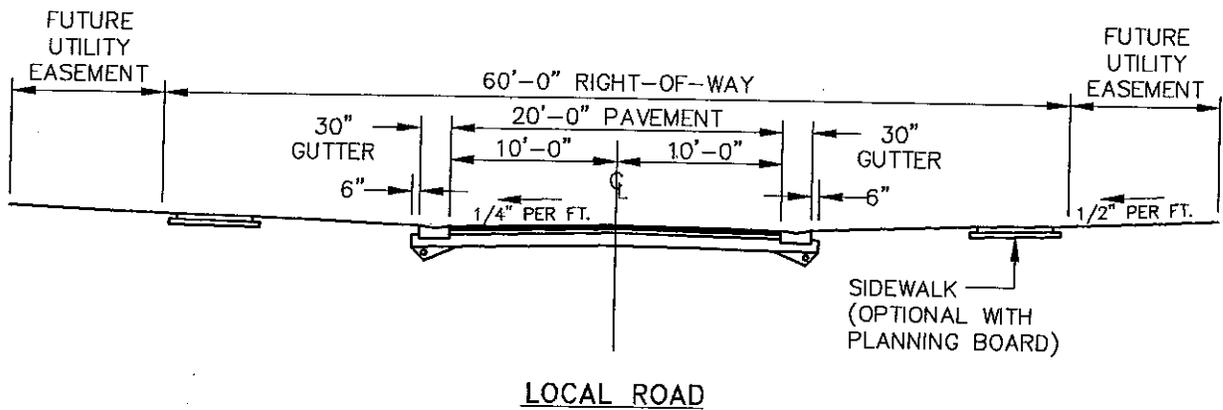
APPENDIX: SR-2

DATE: JANUARY, 1998
REVISED JULY, 1998

MRB | *group*

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VILLAGE OF CHURCHVILLE



TYPICAL ROAD CROSS SECTION

(N.T.S.)

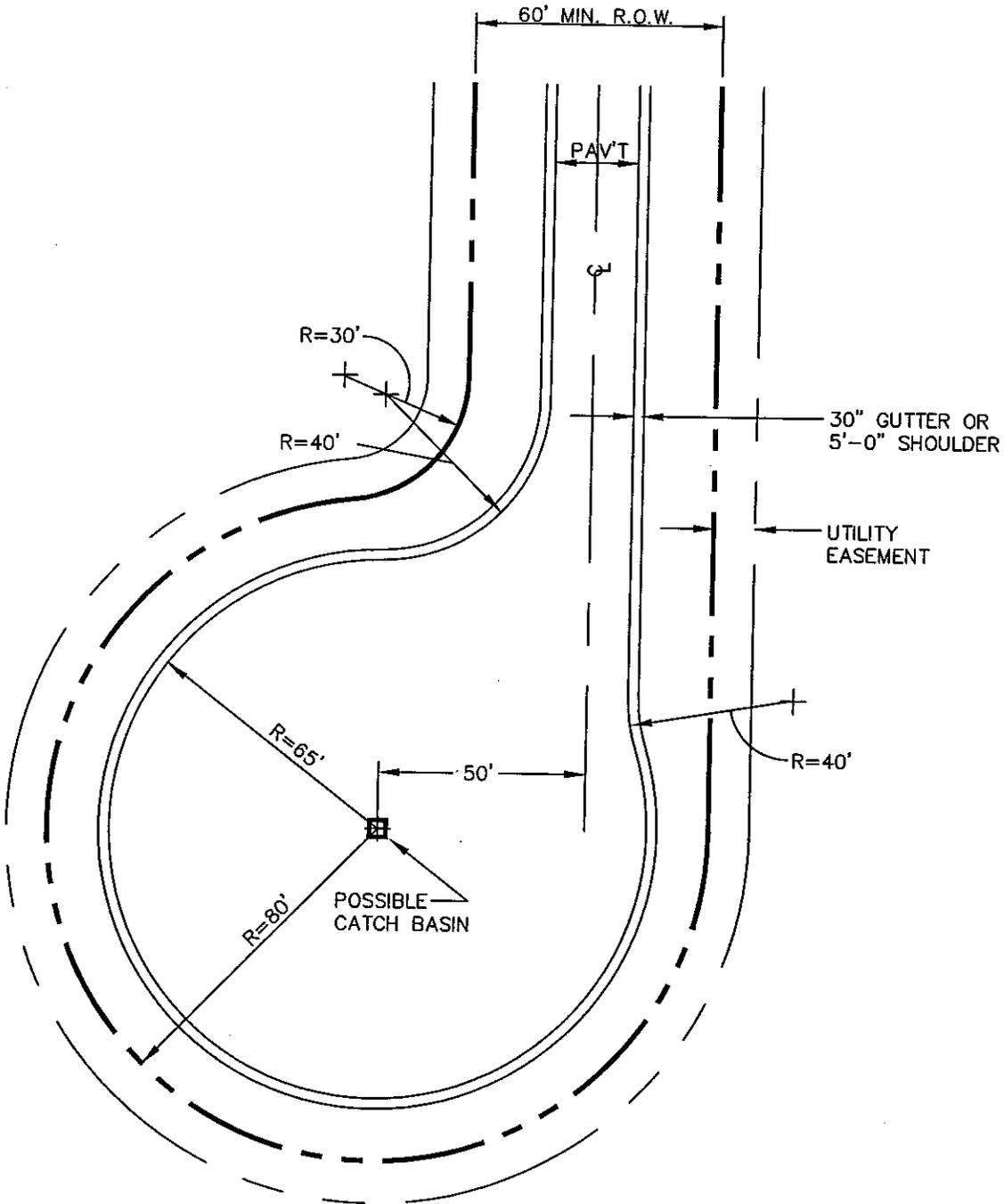
APPENDIX: SR-3

DATE: JANUARY, 1998
REVISED JULY, 1998

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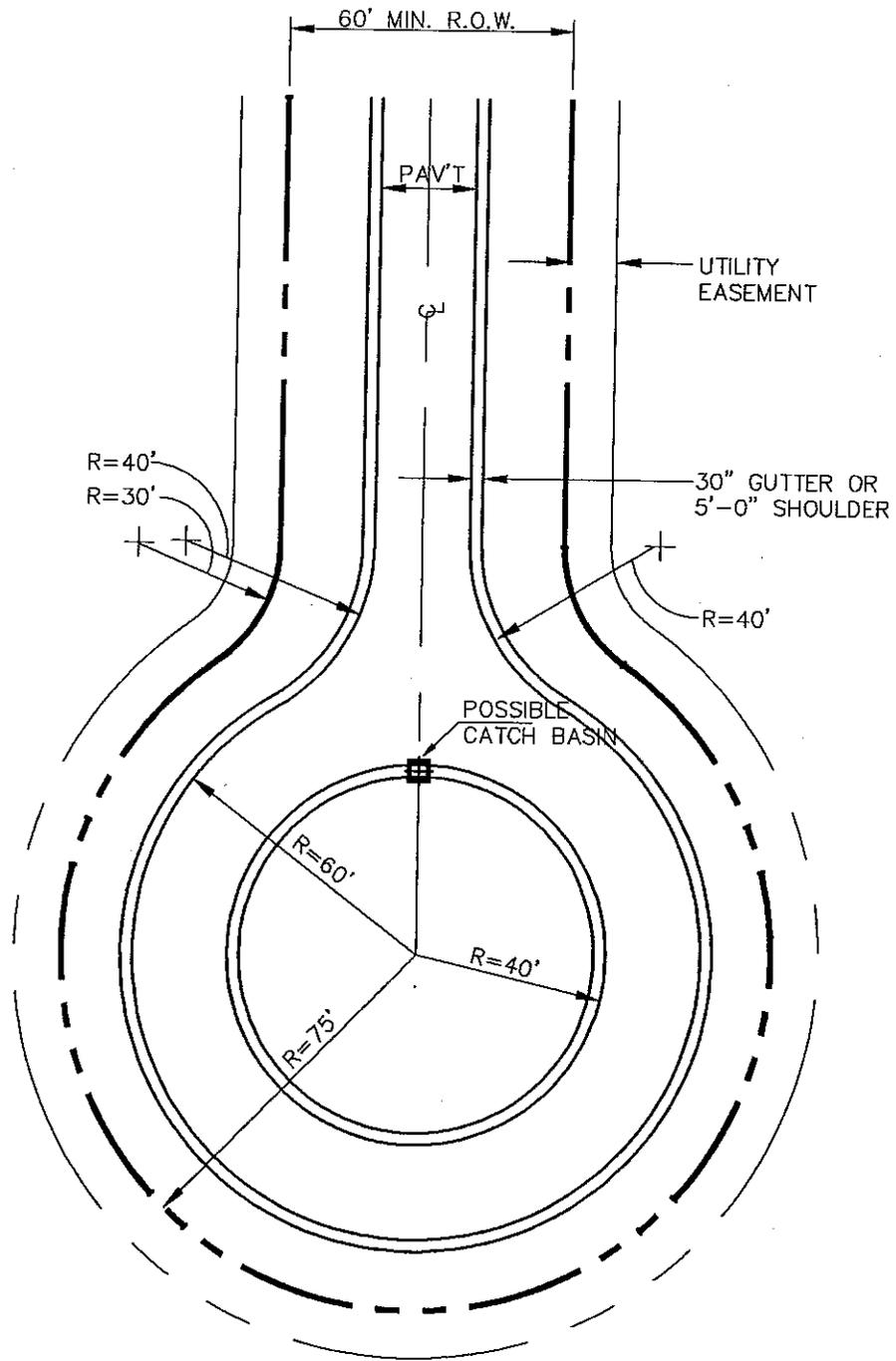
VILLAGE OF CHURCHVILLE



OFFSET CUL-DE-SAC PLAN

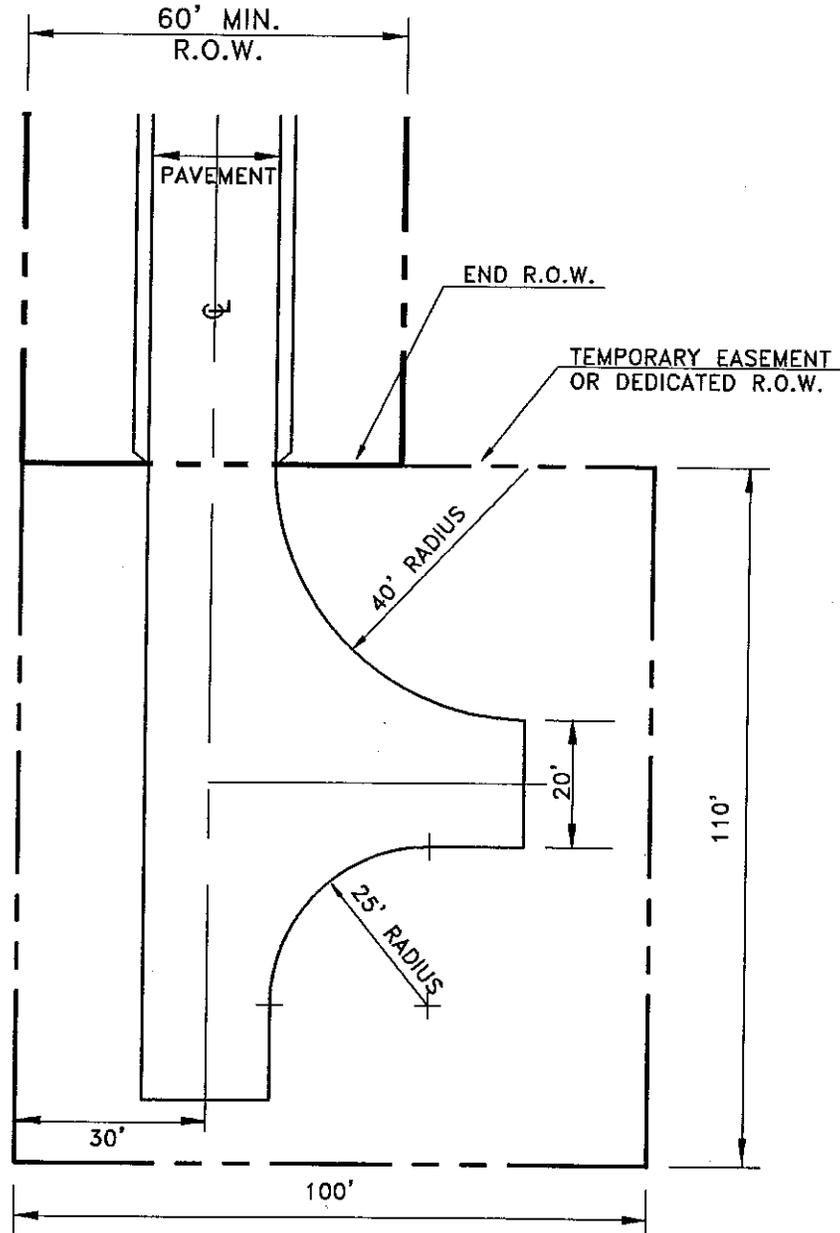
(N.T.S.)

VILLAGE OF CHURCHVILLE



CUL-DE-SAC PLAN

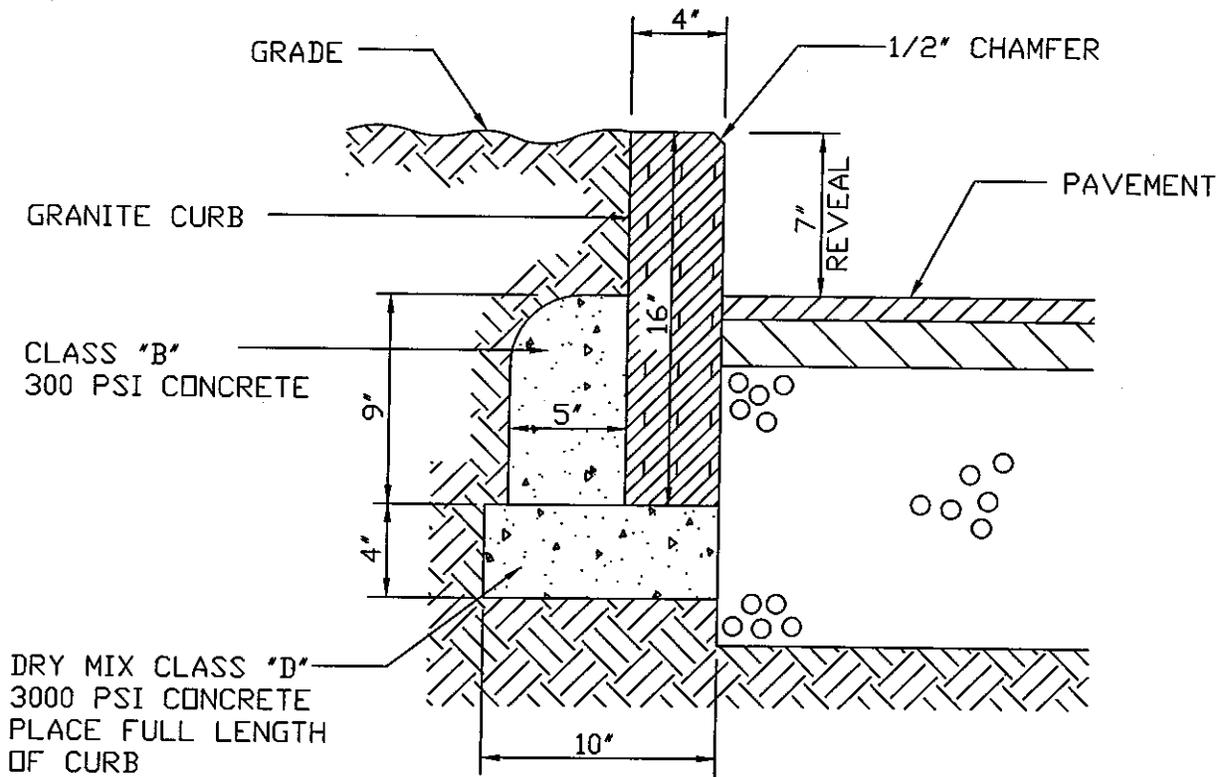
(N.T.S.)



NOTE:
LARGER AREAS MAY
BE REQUIRED FOR
SNOW STORAGE OR
TOPOGRAPHY

TEMPORARY TURN-AROUND
(N.T.S.)

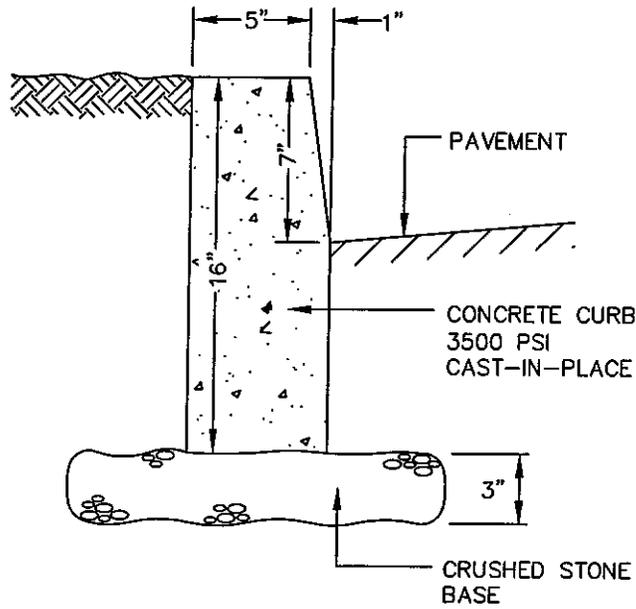
VILLAGE OF CHURCHVILLE



GRANITE CURB DETAIL

(N.T.S.)

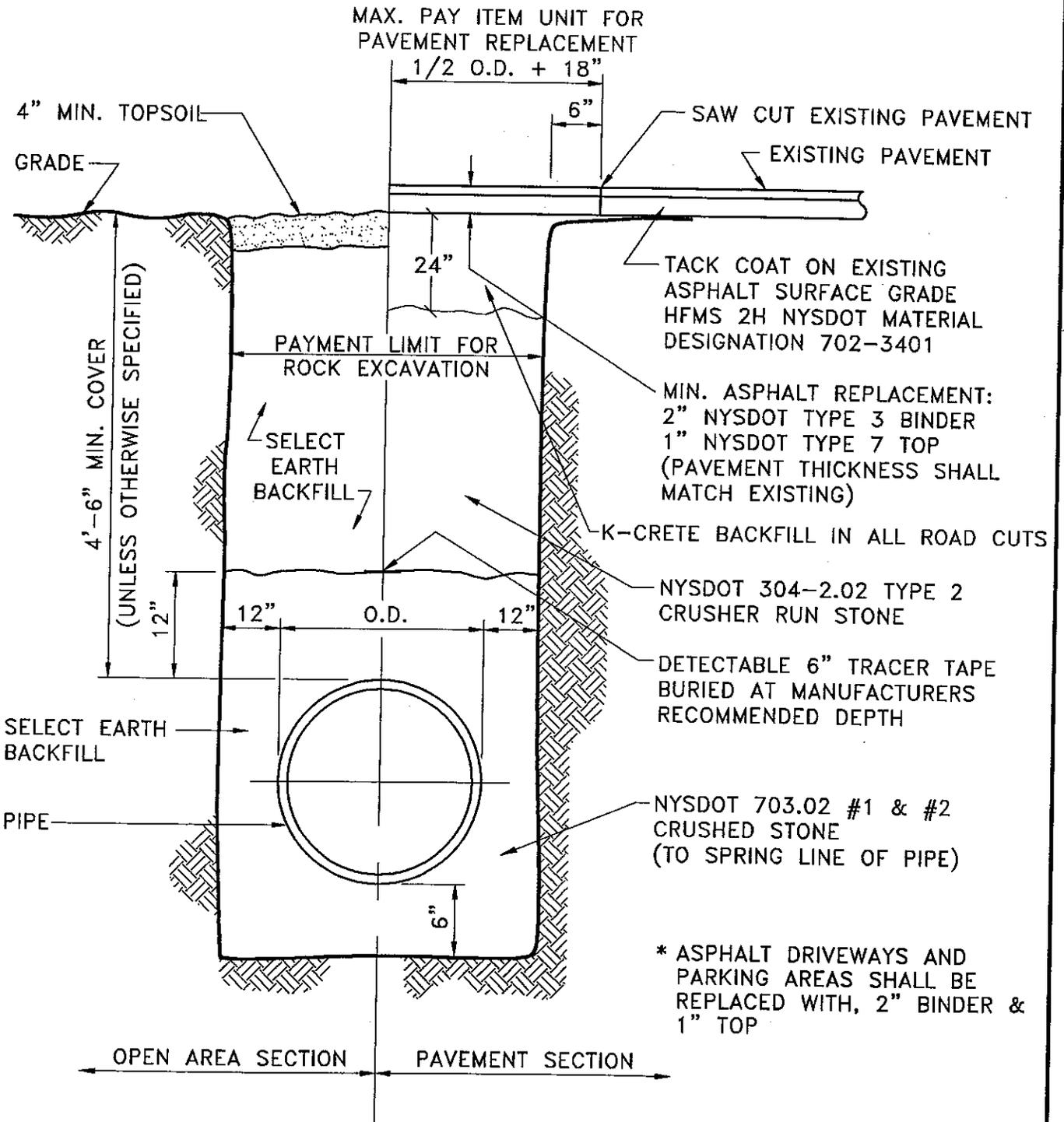
VILLAGE OF CHURCHVILLE



CONCRETE CURB SECTION

(N.T.S.)

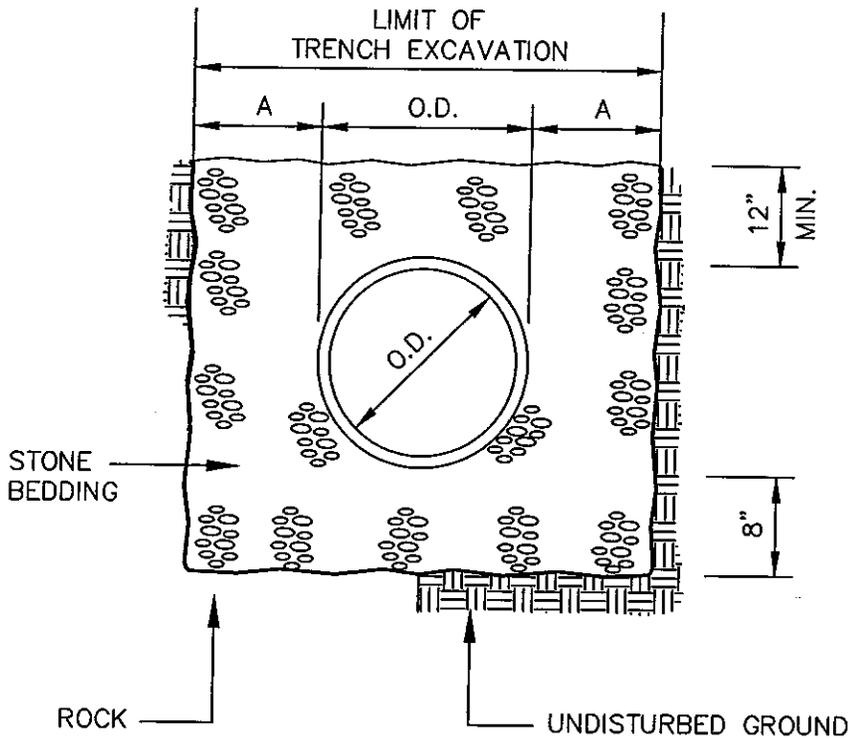
VILLAGE OF CHURCHVILLE



FLEXIBLE PIPE TRENCH DETAIL

(N.T.S.)

VILLAGE OF CHURCHVILLE



PIPE BEDDING

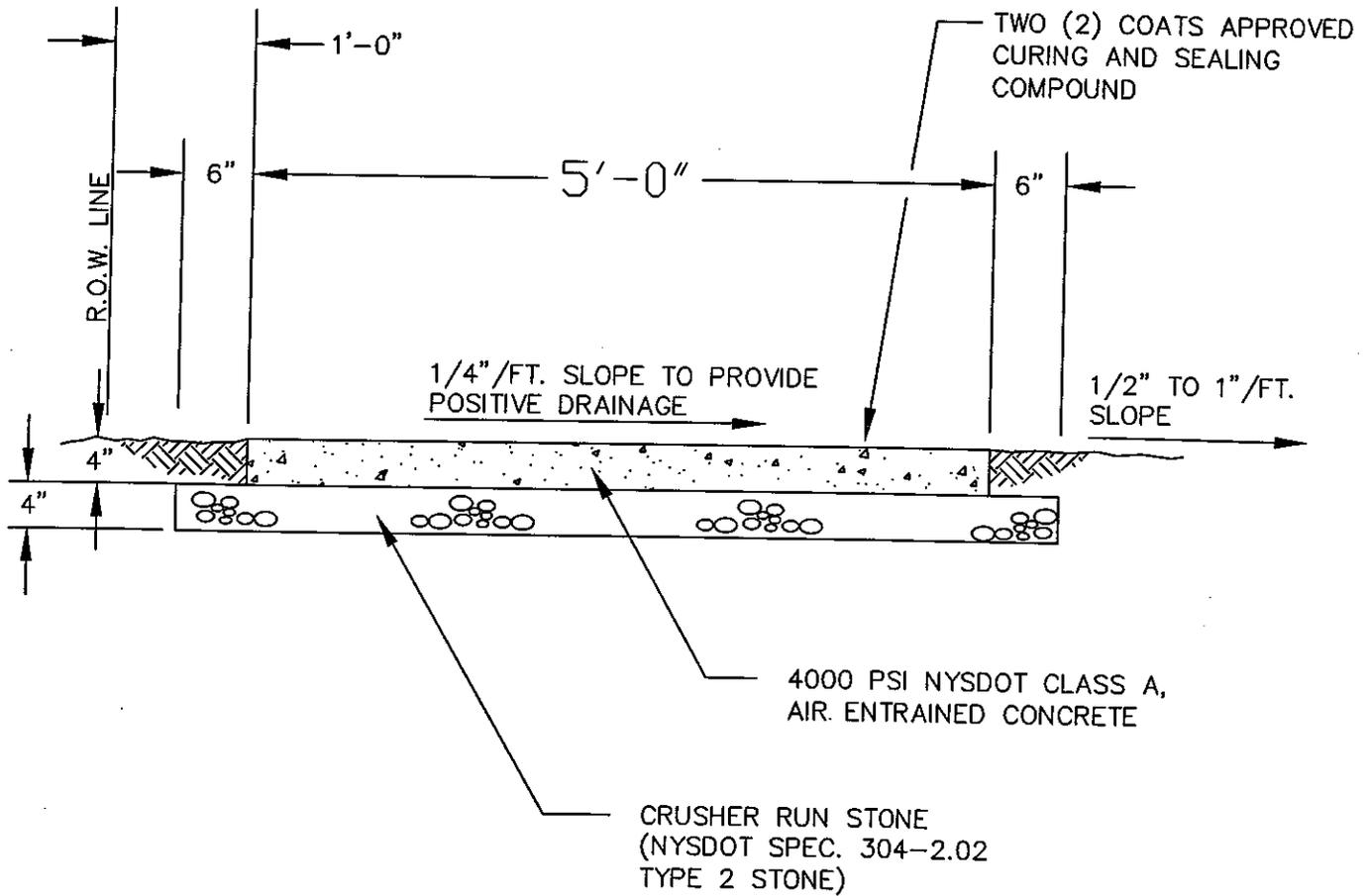
N.T.S. CLASS "B"

PIPE DIA.	DIM. OF "A"	"B"
UP TO 18"	1.0'	6"
21" TO 36"	1.5'	9"
OVER 36"	1.5'	12"

NOTES:

1. TRENCH BACKFILL SHALL BE AS REQUIRED BY THE HIGHWAY OWNER.
2. SELECT FILL SHALL BE SAND, GRAVEL AND SIMILAR MATERIAL WHICH SHALL BE FREE FROM CLAY, LOAM, ORGANIC MATERIAL, DEBRIS, FROZEN MATERIAL AND SHALL CONTAIN ONLY SMALL AMOUNTS OF STONE, PEBBLES OR LUMPS OVER ONE INCH IN GREATEST DIMENSION BUT NONE OVER TWO INCHES IN GREATEST DIMENSION.
3. STONE BEDDING SHALL MEAN APPROVED IMPORTED AGGREGATE MEETING THE REQUIREMENTS OF THE N.Y.S.D.O.T., STANDARD SPECIFICATION, JAN. 2, 1985 EDITION PAGES 7-14, SUBSECTION 703-0201 "CRUSHED STONE", PRIMARY SIZE 1 OR A MIXTURE OF PRIMARY SIZES 1 AND 2.
4. COARSE AGGREGATE SHALL MEAN APPROVED IMPORTED AGGREGATE MEETING THE REQUIREMENTS OF THE N.Y.S.D.O.T., STANDARD SPECIFICATION, JAN. 2, 1985 EDITION, PAGES 7-14, SUBSECTION 703-0201 "CRUSHED STONE", PRIMARY SIZE 3 AND/OR 4.

VILLAGE OF CHURCHVILLE

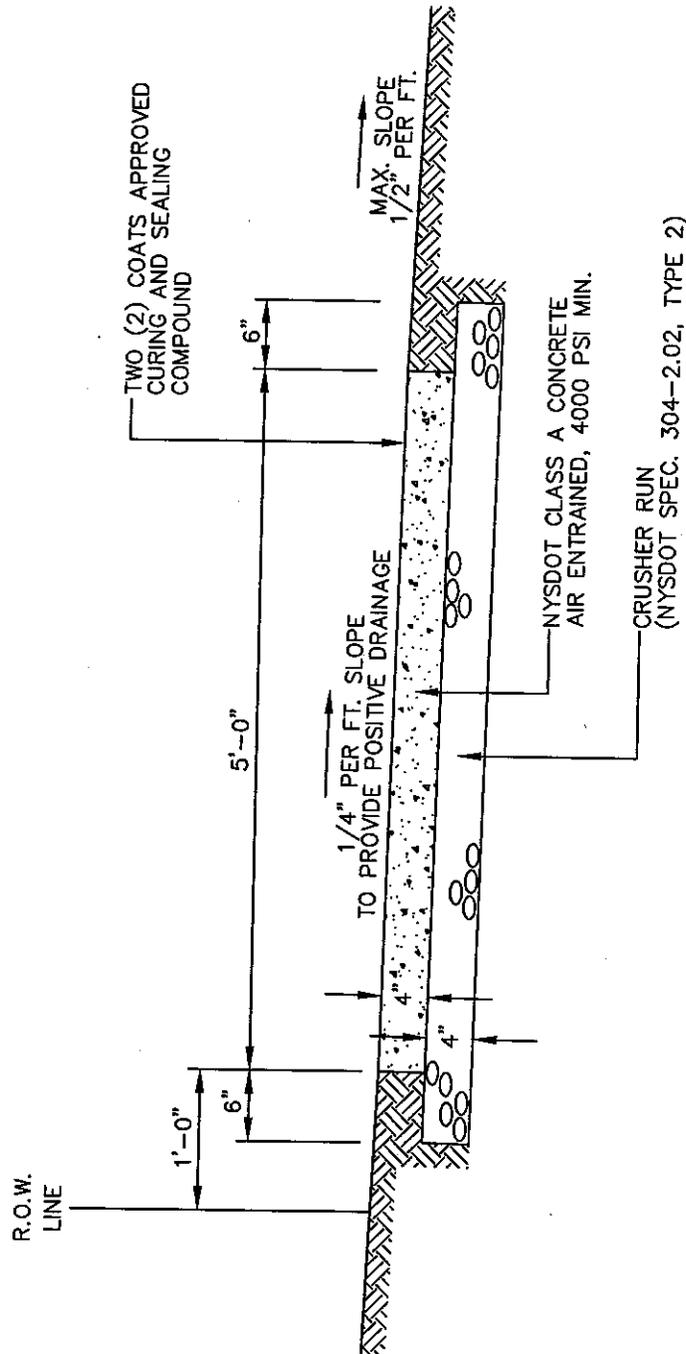


NOTE: CONCRETE SIDEWALKS THROUGH DRIVEWAY SHALL BE INCREASED TO A 5" THICKNESS AND INCLUDE 6"X6" WIRE MESH (10 GAUGE) FOR REINFORCEMENT.

SIDEWALK REPLACEMENT DETAIL

N.T.S.

VILLAGE OF CHURCHVILLE



NOTE:

CONCRETE SIDEWALKS THROUGH DRIVEWAYS SHALL BE INCREASED TO A 5" THICKNESS AND SHALL INCLUDE 6"x6" WIRE MESH (10 GAUGE) FOR REINFORCEMENT.

SIDEWALK DETAIL

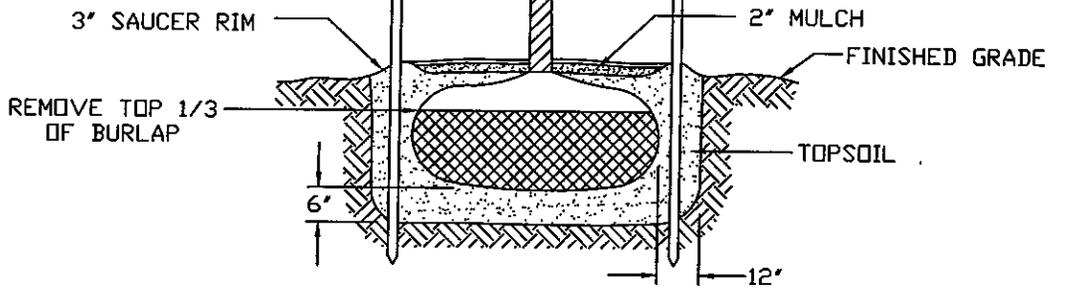
(N.T.S.)

VILLAGE OF CHURCHVILLE

TRIM BRANCHES BY 1/3
RETAINING NATURAL TREE
SHAPE. NEVER CUT
EVERGREEN LEADER.

BASE OF PLANT PIT SHALL
BE SCARIFIED TO A DEPTH
OF 12" MINIMUM.

STAKES (DO NOT TOUCH
ROOT BALL W/STAKES)
2 FOR TREES UP TO 2 1/2" CAL.
3 FOR TREES OVER 2 1/2" CAL.

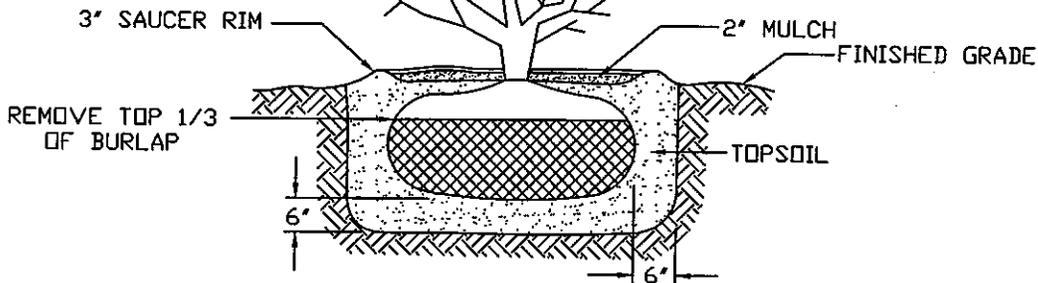


TYPICAL TREE PLANTING DETAIL

(N.T.S.)

THIN BRANCHES AND FOLIAGE
(NOT ALL END TIPS) BY 1/3
RETAINING NATURAL PLANT SHAPE.
NEVER CUT EVERGREEN LEADER.

BASE OF PLANT PIT SHALL
BE SCARIFIED TO A DEPTH
OF 12" MINIMUM.



TYPICAL SHRUB PLANTING DETAIL

(N.T.S.)

VILLAGE OF CHURCHVILLE

LANDSCAPE/PLANTING NOTES

1. PLANT MATERIALS SHALL CONFORM TO CORRECT STANDARDS OF THE AMERICAN ASSOCIATION OF NURSERYMEN. ALL PLANT MATERIALS SHALL BE TRUE TO NAME AND SHALL BE IN ACCORDANCE WITH THOSE ADOPTED BY THE AMERICAN JOINT COMMITTEE ON HORTICULTURAL NOMENCLATURE.
2. PREPARED TOPSOIL FOR ALL PLANTS, ONE PART TOP SOIL TO ONE PART NATIVE SOIL (50/50 MIX).
3. LAWN SEED MIX.

<u>BLEND</u>	<u>PARTS</u>	<u>LBS/1000 SQ. FT.</u>
KENTUCKY BLUEGRASS	65%	2.0-2.6
PERENNIAL RYEGRASS	20%	0.6-0.8
FINE FESCUE	15%	0.4-0.6
		3.0-4.0

4. FINAL LOCATION OF TREES AND OTHER LANDSCAPING SHALL BE DETERMINED IN THE FIELD BASED ON UTILITY STAKE OUT.
5. LANDSCAPING SHALL BE PLACED SO AS NOT TO CONFLICT WITH UTILITIES.
6. ALL DISTURBED AREAS SHALL BE RE-SEEDED WITHIN 7 DAYS OF THE COMPLETED GRADING.

MAINTENANCE SCHEDULE

1. CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIALS FOR A PERIOD OF 3 YEARS FROM THE DATE OF INITIAL PLANTING.
2. FLOOD PLANTS TWICE WITHIN THE FIRST 24 HOURS.
3. PRUNING MAY BE DONE OVER A PERIOD OF TIME (3-4 YEARS) AND THEN REPEAT THE CYCLE. SOME COMPANIES OFFER REDUCED RATES FOR TREE PRUNING DURING THE WINTER MONTHS.
4. FERTILIZATION MAY ALSO BE DONE OVER A PERIOD OF TIME WITH REPEATING CYCLES.
5. SPRAY PROGRAMS SHOULD BE DONE YEARLY. PESTICIDES USED IN PROGRAMS TODAY ONLY HAVE A TEN DAY EFFECTIVE LIFE.

SPECIFICATIONSSPRAY PROGRAM

EARLY SPRING: DORMANT SPRAY - OIL SOMETIMES IN COMBINATION WITH ETHION.
 APRIL - MAY: BIRCH TREES - SYSTEMIC FOR LEAF MINER (DI SYSTON)
 MAY - AUGUST: LEAF SPRAYS - SHOULD CONTAIN COMBINATIONS OF THE FOLLOWING:
 MALATHION, SEVIN, METHOXYCHLOR AND A FUNGICIDE. KELTHANE
 SHOULD ALSO BE INCLUDED FOR MITE CONTROL.

PRUNING

TO BE DONE BY A PROFESSIONAL TREE COMPANY. OBJECTIVE IS TO SANITIZE, THIN AND SHAPE.

GUYING

PRIMARILY FOR BIRCH TREES, HOWEVER, OTHER TREES SHOULD BE CHECKED FOR WEAK LIMB STRUCTURE. PURPOSE OF GUYING IS TO PREVENT SPLITTING OF TRUNKS AND LIMBS UNDER SNOW AND ICE LOADS AND DURING STRONG WINDS.

FERTILIZATION

INJECT TRUNK OF TREES WITH STEMIX. EVERGREEN TREES TO BE INJECTED WITH STEMIX AND ZINC. TREATMENT IS GOOD FOR 2 YEARS. DO NOT INJECT IN JULY, AUGUST OR SEPTEMBER.

Part VI

APPENDIX

Appendix A

Development Application &
Checklist

DATE SUBMITTED _____

Village of Churchville
Planning Board
22 South Main Street
Churchville, New York 14428

Attn: Planning Board Secretary

APPLICATION

RE: _____
PROJECT NAME

PROJECT LOCATION

Board Members:

Pursuant to Section 116-2 or Section 140-43.B of the Code of the Village of Churchville applicants below hereby apply for:

for the following proposed:

- Subdivision plat approval
- Site plan approval
- A Special permit

- One lot single family home
- One lot, 2 family home
- Minor subdivision (1 lot into 4 or less lots)
- Major subdivision (1 lot into 5 or more lots)
- Subdivision (combining lots into larger ones or redividing lots)
- Development
- Redevelopment/change in use
- _____

(Describe use that requires Special Permit)

INSTRUCTIONS to Applicants:

Fill in pertinent information on pages 1-5
Type or clearly print all required information
Check the items on pages 2 and 3 that are being submitted as part of this Application
Get appropriate signatures on the certification page
Submit with 15 copies of each document or drawing
Applications and plans/reports should be submitted **10 days** prior to being placed on agenda. Applications requiring Village Engineer reviews should be submitted **3 weeks** prior to meeting date.

DEVELOPMENT APPLICATION AND CHECKLIST

Project: _____

The proposed project involve _____

Tax map parcel #'s _____

Acreage of Project _____ Current Zoning _____

Acreage of total parcel _____ Present use of property _____

Ownership intentions (i.e. purchase, options, lease) _____

describe any easements or restrictions on the property: _____

In support of this application, the following information is submitted:

		Do Not Write Below	
		For Town Use	
		Date	Initials
_____	Application fee in the amount of \$ _____	_____	_____
_____	Preliminary Plat Map	_____	_____
_____	Area Map	_____	_____
_____	Topographic Map	_____	_____
_____	Site Plan	_____	_____
_____	Soil Overlay	_____	_____
_____	SEQRA - Full EAF	_____	_____
_____	R.O.W. Naming Act Application	_____	_____

DEVELOPMENT APPLICATION AND CHECKLIST

Project: _____

_____	Grading Plan	_____	_____
_____	Preliminary Engineering Report	_____	_____
_____	Preliminary Drainage Plan	_____	_____
_____	Final Plat Map	_____	_____
_____	Grading and Drainage Plan	_____	_____
_____	Utility Plan	_____	_____
_____	Landscape Plan	_____	_____
_____	Street Lighting Plan	_____	_____
_____	Final Engineering Report	_____	_____
_____	Final Drainage Report	_____	_____
_____	Easement descriptions	_____	_____
_____	Easement maps	_____	_____
_____	Easement documents	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

DEVELOPMENT APPLICATION AND CHECKLIST

Project: _____

DESIGN PROFESSIONALS:

The following design professionals or attorneys may be involved with this project. The lead professional is indicated by an asterisk (*)

COMPANY NAME

ADDRESS

CITY STATE ZIP

PROFESSION

CONTACT NAME

() - _____
TELEPHONE

() - _____
FAX

COMPANY NAME

ADDRESS

CITY STATE ZIP

PROFESSION

CONTACT NAME

() - _____
TELEPHONE

() - _____
FAX

COMPANY NAME

ADDRESS

CITY STATE ZIP

PROFESSION

CONTACT NAME

() - _____
TELEPHONE

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TELEPHONE

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FAX

COMPANY NAME

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CITY STATE ZIP

PROFESSION

CONTACT NAME

() - _____
TELEPHONE

() - _____
FAX

COMPANY NAME

ADDRESS

CITY STATE ZIP

PROFESSION

CONTACT NAME

() - _____
TELEPHONE

() - _____
FAX

DEVELOPMENT APPLICATION AND CHECKLIST

Project: _____

CERTIFICATION OF STATEMENTS

The applicant(s) hereby affirms that the above information is accurate and complete, to the best of his/her knowledge and information, and that he/she/they is/are the title owner(s) of the property or has/have been authorized by the title owner(s) to make this application.

DEVELOPER's SIGNATURE

NAME

FIRM

TAX PAYER ID or SOCIAL SECURITY #

ADDRESS

CITY STATE ZIP

() - _____
TELEPHONE

() - _____
FAX

DEVELOPER's SIGNATURE

NAME

FIRM

TAX PAYER ID or SOCIAL SECURITY #

ADDRESS

CITY STATE ZIP

() - _____
TELEPHONE

() - _____
FAX

I/We hereby certify that I/WE am/are title owner(s) of the property identified in the above application and that applicant(s) named above is/are authorized to make the application described herein.

SIGNATURE

NAME

TITLE

SIGNATURE

NAME

TITLE

DEVELOPMENT APPLICATION AND CHECKLIST

Project: _____

The following pages are for the Town's use. **Do Not write on them!**

<u>ACTION OR ITEM</u>	<u>DATE</u>	<u>BY</u>	<u>INITIALS</u>
<u>CONCEPT phase</u>			
Concept plan presentation	_____	Applicant	_____
Concept Review	_____	Planing Board	_____
<u>PRELIMINARY PLAN phase</u>			
Application	_____	Applicant	_____
Fees Paid	_____	Applicant	_____
Agricultural Data Statement	_____	Design Professional	_____
Notice of Complete Application issued	_____	P.B. Secretary	_____
239 m or n Review Submitted to County Planning	_____	P.B. Secretary	_____
SEQRA			
Full EAF	_____	Applicant	_____
Resolution Classifying Type of Action	_____	Planning Board	_____
Review Notice	_____	P.B. Secretary	_____
Notice of Intent to be Lead Agency	_____	Planning Board	_____
Resolution Declaring Lead Agency	_____	Planning Board	_____
Resolution Determining Environmental Significance	_____	Lead Agency	_____
Notice of Determination	_____	P.B. Secretary	_____
PUBLIC HEARING			
Public Hearing Scheduled	_____	P.B Secretary	_____
Public Hearing Notice published in official paper	_____	P.B. Secretary	_____
Notice of Public Hearing sent to residents within 500'	_____	P.B. Secretary	_____
Public Hearing Held	_____	Planning Board	_____

DEVELOPMENT APPLICATION AND CHECKLIST

Project: _____

<u>ACTION OR ITEM</u>	<u>DATE</u>	<u>BY</u>	<u>INITIALS</u>
ZBA			
Zoning Variance (if required) applied for	_____	Applicant	_____
Zoning Board of Appeals decision	_____	ZBA	_____
Village Engineer's review	_____	Village Engineer	_____
County Planning 239 m or n review	_____	Monroe County Planning	_____
Resolution of Preliminary Approval	_____	Planning Board	_____
Notice of Preliminary Approval filed by Village Clerk	_____	P.B. Secretary	_____
Notice of Preliminary Approval given to applicant	_____	P.B. Secretary	_____
<u>FINAL PLAN phase</u>			
Final plans submitted	_____	Design Professional	_____
Village Engineer's review	_____	Village Engineer	_____
<u>STREET NAME</u>			
R.O.W. Naming Act Application	_____	Design Professional	_____
911 Name Approval	_____	911 Board	_____
Names formally adopted	_____	Village Board	_____
Notify Brockport Comm. Center of all new street names	_____	Village Clerk	_____
<u>SANITARY FACILITIES</u>			
Sewer District Map	_____	Design Professional	_____
Sewer District Description	_____	Design Professional	_____
Sewer District Petition	_____	Applicant	_____
Resolution Creating Sewer District	_____	Village Board	_____
San form 72	_____	Design Professional	_____
San form 65	_____	Design Professional	_____
BSP 5	_____	Village Mayor	_____
Approval of sewer facilities	_____	MCDoH	_____
Approval of sewer connection	_____	Village Board	_____

DEVELOPMENT APPLICATION AND CHECKLIST

Project: _____

<u>ACTION OR ITEM</u>	<u>DATE</u>	<u>BY</u>	<u>INITIALS</u>
<u>WATER FACILITIES</u>			
Water District Map	_____	Design Professional	_____
Water District Description	_____	Design Professional	_____
Water District Petition	_____	Applicant	_____
Resolution Creating Water District	_____	Village Board	_____
MNDOH 348 (Gen form 296)	_____	Village Mayor	_____
Article III Approval of Subdivision	_____	MCDOH	_____
WSP application submitted	_____	Village Mayor	_____
Water Supply Permit issued	_____	NYSDEC	_____
Approval of Water Facilities	_____	MCDOH	_____
<u>DRAINAGE FACILITIES</u>			
Drainage District Map	_____	Design Professional	_____
Drainage District Description	_____	Design Professional	_____
Resolution Creating Drainage District	_____	Village Board	_____
<u>STREET LIGHTING</u>			
Street Lighting District Map	_____	Design Professional	_____
Street Lighting District description	_____	Design Professional	_____
Resolution Creating Street Lighting District	_____	Village Board	_____
<u>SIDEWALKS</u>			
Sidewalk District Map	_____	Design Professional	_____
Sidewalk District description	_____	Design Professional	_____
Resolution Creating Sidewalk District	_____	Village Board	_____
Easement documents submitted	_____	Design Professional	_____
Easement Documents approved	_____	Village Engineer and Village Attorney	_____
Deeds of Dedication tendered	_____	Developer	_____
Recording fees submitted	_____	Developer	_____
Resolution of Final Approval	_____	Planning Board	_____

DEVELOPMENT APPLICATION AND CHECKLIST

Project: _____

<u>ACTION OR ITEM</u>	<u>DATE</u>	<u>BY</u>	<u>INITIALS</u>
Resolution of Final Approval filed with Village Clerk	_____	P.B. Secretary	_____
Resolution of Final Approval given to Applicant	_____	P.B. Secretary	_____
Related fees paid	_____	Developer	_____
Final Plans signed	_____	Village Dept. Heads	_____
Form MCPC 1947 prepared and Certified	_____	Developer	_____
	_____	Village Clerk	_____
Final Maps filed in County Clerk's office	_____	Developer	_____
Proof of Filing to Village Clerk	_____	Developer	_____
Final, signed plans filed with Village Clerk	_____	Applicant	_____
<u>CONSTRUCTION phase</u>			
Preconstruction meeting	_____	Village Engineer	_____
Estimate for Financial Security reviewed	_____	Village Engineer	_____
Form of Financial Security reviewed	_____	Village Engineer	_____
Financial Security posted	_____	Developer	_____
Road cut permits -			
State (NYS Highway Law 56)	_____	NYS DOT	_____
County (NYS Highway Law 136)	_____	County Highways	_____
Village (NYS Highway Law 149)	_____	Village Superintendent	_____
Notice to Proceed Issued	_____	Village Engineer	_____
<u>DEDICATION phase</u>			
Construction completed	_____	Developer	_____
All utilities testing completed and certified	_____	Design Professional	_____
Water sample analysis reviewed	_____	Village Engineer	_____
MCDOH "Completed Works" Certificate issued	_____	MCDOH	_____
Easements filed	_____	Developer	_____
Monuments and property markers set	_____	Design Professional	_____
Street and traffic signs installed	_____	Developer	_____

DEVELOPMENT APPLICATION AND CHECKLIST

Project: _____

<u>ACTION OR ITEM</u>	<u>DATE</u>	<u>BY</u>	<u>INITIALS</u>
Street and traffic signs approved	_____	Highway Superintendent	_____
Record Drawings prepared	_____	Design Professional	_____
Record Drawings reviewed	_____	Village Engineer	_____
Maintenance Bond posted	_____	Developer	_____
Resolution accepting Dedicated Facilities	_____	Village Board	_____
Acceptance of Highways	_____	Highway Superintendent	_____
Concurrence	_____	Village Board	_____
Section 171 Order filed	_____	Highway Superintendent	_____
Final Release of Financial Security	_____	Village Board	_____

INSTRUCTION to Town: As each item is received, the date of receipt is to be placed in first column. Official placing document or item in the official file should initial in column 3.

Any item that is not required should be indicated by N. A. in date column. Individual making a N. A. Determination should initial in column 3.

Use blank space to the right of columns for any comments or notes.

DEVELOPMENT APPLICATION AND CHECKLIST

Project: _____

FORMS

Copies of the following forms are attached for the applicant's information and use:

- Current Village of Churchville Fee Schedule
- Schedule of various Village Board meetings
- SEQRA Full Environmental Assessment form
- Right of Way Naming Act application
- Development review Referral form (239 m or n review)
- MCDOH San. form 72
- MCDOH San form 65
- BSP 5
- MCDOH 348 (Gen form 296)
- MCPC 1947 Subdivision Form 1