VILLAGE OF HONEOYE FALLS

SITE PLAN
DESIGN CRITERIA
AND
CONSTRUCTION SPECIFICATIONS

MARCH 2009

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PART - 1 GENERAL PROCEDURES

1.1 INTRODUCTION

1. This booklet has been prepared to serve as a guide for and a control over the development of property within the Village of Honeoye Falls. The intent is to assure proper design and construction of facilities that will be turned over to the Village for perpetual maintenance and for facilities that will affect the health and general welfare of the community and to assure that development is compatible with the long-range development plan of the Village.

2. The intent of this book is to inform the land owner, developer, design professional and other members of the development team of the minimum requirements of the Village of Honeoye Falls for both design and construction of utilities and pavements to be offered to the Village for dedication or to become part of the infrastructure system. It is important to note that these specifications serve as minimum standards and do not relieve the design professional of their obligation to provide technically competent design for each individual application. The design professional shall be a civil engineer experienced in this type of work and licensed to practice in the State of New York.

3. The Village of Honeoye Falls adopted, on November 10, 1991, Land Subdivision Regulations. Notice is hereby given that in the event the rules and regulations set forth in the Land Subdivision Regulations are in conflict with or inconsistent with any of the provisions contained herein, the rules and regulations of the Land Subdivision Regulations shall be controlling and shall be followed by the Village in reviewing and approving subdivision and site plan applications.

4. This booklet is divided into three general sections. The first section is entitled: “General Procedures” which deals with procedures to be followed. The intent is to provide a guide which will assure expeditious review of subdivision plans, as well as the consideration of completed works which are to be turned over to the Village for dedication.

5. The second section is entitled, "Design Criteria" which provides a guide for developers and engineers in the preparation of plans for the subdivision.

6. The third section is entitled: "Construction Specifications” and provides the construction details and specific requirements. Developers and their Engineers and Contractors are responsible to familiarize themselves with these specifications and to complete the work in accordance with these specifications and approved Site Plans.

1.2 PLANNING REVIEW PROCESS

1. An application is a requisite to begin the formal review process. An application is reviewed in a three-step procedure: Sketch Plan Review, Preliminary Approval, and Final Approval. The applicant is also encouraged to take advantage of the Pre-application Conference with the Planning Board. Applicants are responsible for meeting all requirements of the Planning Board submission regulations; pay all application fees; pay for all Village Attorney and Village Engineer review fees; and, pay all other applicable impact fees (e.g. recreation fee, sewer connection, etc.).

2. A design professional (New York State Licensed Professional Engineer or Registered Architect or Registered Landscape Architect) shall be retained by the Developer or land owner and shall act as an agent in all matters involving decisions or procedures. The designs submitted shall be based upon accepted engineering practices and principles and with the criteria set forth in this book and the most recent edition of the Village Code serving as a minimum set of standards. It shall be the sole responsibility of the Developer's design professional to provide a technically complete and functional project.

1.3 SEQUENCE OF PROCEDURES FOR DEVELOPMENT

SITE PLAN REVIEW:

1. Pre-Application Conference: Four (4) weeks prior to a Planning Board meeting an applicant can request to be heard at the next meeting to discuss a proposal. Applicant shall supply a rough sketch of plans. Refer to Village Code Section 161.

2. Sketch Plan Review: Four (4) weeks prior to a Planning Board meeting, the applicant shall submit nine (9) copies of plans to the Code Enforcement Officer. Refer to Village Code Section 161. No approvals are given at this review.

3. Preliminary Plan Review: Four (4) weeks prior to a Planning Board meeting, the applicant shall submit nineteen (19) copies of plans and nine (9) copies of the Environmental Assessment Form to the Code Enforcement Officer. Refer to Village Code Section 161. All required information and appropriate fees must be submitted in order to be placed on the Planning Board's meeting agenda.

4. Final Plan Review: Four (4) weeks prior to a Planning Board meeting, the applicant shall submit nine (9) copies of plans, which shall contain all required endorsements and approvals from state and county agencies, including the Monroe County Health Department. Applicant will also submit any required offers of cessation, covenants and easements and construction drawings to the Code Enforcement Officer. Refer to Village Code Section 161. Village Engineer review fees and Village Attorney fees related to site plan approval must be paid in full prior to issuance of a final subdivision or site plan approval. Recreation fees and sewer connection fees are to be paid in full prior to obtaining a building permit.

Following the meeting, the applicant will be provided with a copy of the resolution stating the Board's decision related to the application and conditions of approval. If the application was approved, the next step would be an application for a building permit. If the application was approved with conditions and/or changes, updated plans or drawings must be provided for the next phase of review.

5. Letter of Credit: Prior to action by the Planning Board approving a final plat, the applicant shall complete infrastructure or submit to the Village Board a Letter of Credit. Refer to Letter of Credit Section of this book and Village Code Section 161 for specific requirements.

6. Signatures: As a condition of approval and before the Village Engineer, Village Representative and Planning Board Chairperson affix their signatures to the site plans the Developer must: secure all necessary agency signatures as appropriate (e.g. MCWA, MCDOH, MCDOT, etc); obtain all necessary agency approvals as appropriate (e.g. NYSDOT, NYSDEC wetlands, US ACOE wetlands or stream crossing, etc.); furnish recordable easements and conservation restrictions; post the Letter of Credit; furnish Road Dedication Agreement, and Snow and Ice Removal Agreement; and, pay all site plan approval fees and Village Engineer review fees prior to final approval.

PRE-CONSTRUCTION

7. Pre-Construction Conference: A pre-construction conference will be held at the Village Office, coordinated by the Developer, prior to the start of any work. It shall be the Developer's responsibility to inform the Village with adequate lead time for scheduling of this meeting. Present at this meeting shall be Village Officials, Village Engineer, Contractors, Sub-Contractors, Utility and Highway Representatives, the Applicant/Developer and Developer's design professional. The Developer is responsible to have meeting minutes prepared and distributed within 10 calendar days after the meeting.

   The Developer shall be prepared to discuss a work plan, timetable and personnel to be used on the project. Contact information including 24-hour emergency telephone numbers for contractor superintendent(s) shall be provided. In addition, a copy of the contractor's certificate of insurance shall be provided to the Village (naming the Village additional insured).

   Prior to the pre-construction conference, copies of all project related permits from the County, State, NYSDEC wetland, etc. shall be provided to the Village. In addition, all easements shall be filed with the County.

   Other items such as: Village permits; special conditions; required Village inspections; shop drawing submittals for dedicated facilities; testing; safety regulations; payment vouchers; and, procedures for periodic release of funds from Letter of Credit will be discussed.

CONSTRUCTION

8. Material Submittals: Construction procedures and materials subject to approval of the Village and other agencies claiming or having jurisdiction over the work shall be submitted for approval prior to incorporation into the work. Material certifications shall be provided to the Village Engineer.

9. Periodic Village Field Observations: At any time during the progress of the work and up to the date of final acceptance, the Village Officials and Village Engineer shall have the right to reject any work which does not conform to the approved plans, approved shop drawings or specifications. Any omissions or failure on the part of the Village or its representative to disapprove or reject any work or materials shall not be construed as an acceptance of any defective work or materials. Defective work shall be corrected to the satisfaction of the Village or its representative. If any work shall be covered up without approval or consent of the Village or its representative, it shall, if required by the Village or its representative, be uncovered for examination and properly restored at the Developer's expense.

   If field conditions arise or sufficient design errors become known that require new reviews by the Village Engineer, the Village reserves the right to charge the Developer for these costs. Refer to Letter of Credit Section of this book for additional information.

10. Construction of Facilities: Developer's contractor shall construct work in accordance with the approved site plans, approved shop drawings, and specifications. Work shall be completed in a timely fashion, and agreed schedule. The site shall be kept in a neat and orderly manner. Contractor shall notify Village Representatives and Village Engineer prior to work requiring Village inspection.

11. Partial Release of Funds: Developer shall submit to the Village Engineer periodic estimates proportional to the amount of work completed for approval and subsequent recommendation of release of funds. Refer to Letter of Credit Section of this book for specific requirements.

12. Protection of Incomplete Work: Where work is left incomplete, due to weather or other reasons, the work shall be protected. Road beds shall be left well drained, sanitary and storm sewers shall be protected so surface water, mud, silt, debris etc. cannot enter. Service laterals, water services, and valves etc. shall be suitably marked with stakes and protected.

13. Site clean-up: Prior to the project walkthrough the Developer shall leave the site in a neat and orderly condition. Sewers and associated structures shall be flushed with debris removed. Pavements shall be swept clean. Slopes, drainage ways and other graded areas shall be fully stabilized. Grading between adjacent lots, as well as between lots and the streets shall have continuity without abrupt changes in elevations or unfinished ground surfaces. Valve boxes, manholes covers and curb boxes shall be left at proper elevation.

POST-CONSTRUCTION:

14. Construction Project Walkthrough: – Upon completion of the construction related work listed in the Letter of Credit, the Developer shall coordinate and schedule a project walkthrough. The walkthrough shall include all necessary parties (e.g. Village Representatives, Village Engineer, Developer, Developer's contractor(s), etc.) Based on the walkthrough, the Village will generate and distribute a formal punch list. The Developer shall have the identified punch list items corrected, schedule a final construction walkthrough to review corrected items and request approval of completed works.

15. Agency Certifications: Developer shall submit to the Village, copies of all agency certifications and/or acceptances as appropriate. Examples include:
    a. MCWA letter accepting water main after 1 year guarantee period
    b. Certification of completed works from MCDOH
    c. SWPPP Notice of Termination to NYSDEC

16. Street Monuments: Developer is responsible for having a licensed land surveyor set street monuments and shall advise the Village Representative when these are set and have the surveyor available to point them out for final approval.

17. Record Drawings: The Developer shall submit "As-Built" drawings after completion of utilities and storm water management facility. Street monument data shall be shown. Refer to "Record Drawing" section for requirements.

18. Stormwater Management Facility (SWMF) Certification: The Developer's design professional shall submit a stamped and sealed letter certifying the permanent stormwater management facilities as constructed and shown on the record drawing meet the design intent and were constructed in accordance with the approved site plans, approved drainage calculations, NYSDEC regulations and approved SWPPP, as appropriate.

    If revisions to the SWMF were required during construction due to unforeseen site conditions, the Developer's design professional shall also provide concurrence from NYSDEC, that the regulatory agency accepts the modifications to the SWMF. Revisions may also require submission for review and approval from the Planning Board, as determined by the Village Representative.

19. Approval of Completed Work: The Developer shall obtain approval of completed work from the Village Engineer. The Village Engineer, upon verification of completed work; and, satisfactory review of record drawings, street monuments, material certifications; and, stormwater management facility certifications, shall send a letter of recommendation to the Village for dedication of facilities.

20. Dedication of Facilities Request: Developer shall submit a formal letter to the Village Board requesting dedication and provide the necessary documentation. (Refer to Dedication Requirements for additional information.)

21. Release of Letter of Credit: After receipt of approval of completed work from the Village Engineer; approval of the street monuments; establishment of required maintenance bonds; and, Village Board approval for dedication of facilities, the Developer may request the release of remaining funds from the Letter of Credit.

WARRANTY PERIOD:

22. Warranty Period: The Developer shall warrant that the work shall be free from any defects in materials or workmanship for two years from the date of dedication of accepted work by the Village Representative or Village Engineer. The Developer shall establish maintenance bonds for the two year warranty period. Refer to Maintenance Bonds Section for additional information.

23. Final Inspections (Warranty Period): The Developer shall notify the Village Clerk forty five (45) days prior to the expiration date of the Warranty Period. The Village Clerk will advise Village officials as to the date of the warranty completion. Appropriate Village Representatives will make inspection and establish "warranty punch list" of work to be corrected. The Developer shall make necessary repairs to the satisfaction of the Village officials prior to completion of warranty period. Refer to Maintenance Bonds for additional information.

24. Release of Warranty Funds: Once the warranty punch list is complete, any remaining close-out documentation is submitted, and the two-year warranty period expires, the Village releases the unused portions of the monies/bonds held during the warranty period.

1.4 AREAS OF RESPONSIBILITY

1. Village Engineer

   A. Review of street layout and storm drainage.

   B. Review of utilities and all matters relative to Design Criteria.

   C. Recommendations as to special conditions. Developer's design professional should review prior to submission.

   D. Review and approval of Developer's design professional's estimate of cost of improvements.

   E. Review of shop drawings for dedicated facilities. Developer's design professional shall review and approve shop drawings prior to submission to Village Engineer.

   F. Review and approval of Developer's request for release of funds from amount held under letter of credit or escrow account.

   G. Periodic construction observations of dedicated facilities or other features as requested by the Village.

H. Punch-list and walk through with: Village Representatives; Developer; Developer's contractor and design professional. Prepare and distribute punch list. Subsequent site visit to confirm punch list work complete.

I. Review and approval of Developer's design professional's estimate of maintenance bonds values.

J. Prior to termination of Warranty Period, conduct with Village Representatives a project walk through to inspect conditions of features within the dedicated facilities such as road pavement, gutters, curbs, sidewalks, utilities, lighting and landscaping. Report findings to Developer, Village Clerk and Village Attorney. Make subsequent inspection and approval as necessary.

2. Building Inspector

A. Receive plans from Developer on Village's behalf.

B. Review plans to determine permits required.

C. Review plans for street names (no conflict).

3. Planning Board Secretary

A. Place Developer on agenda for Planning Board meeting.

B. Prepare agenda for Planning Board meeting.

C. Place advertisements for hearing.

4. Zoning Enforcement Officer

A. Review plans for compliance with zoning: lot size, setback.

B. Note areas of non-compliance for submission to Zoning Board of Appeals

C. Note any changes in zone requested for submissions to Trustees.

5. Village Departments

A. Department of Public Works

1.) Together with the Village Engineer review plans for: streets, catch basins and storm drainage, storm water detention basins, sidewalks, gutters, trees and landscaping, driveway cuts, and snow plowing.

2.) Review and approve street and drainage construction.

3.) Accompany Village Engineer on punch list walk through.

4.) Accompany Village Engineer on inspection of pavement and gutters prior to termination of Warranty Period.

5.) Together with the Village Engineer determine adequacy to treat anticipated sanitary sewage generated by this development.

6.) Together with the Village Engineer review plans to determine the development's impact on the sanitary sewer plans.

7.) Review and approve sanitary sewer construction and connections to existing sewer.

B. Fire Department

1.) Review plans for sufficient maneuvering room of fire protection vehicles.

2.) Provide comments: i.e., proper posting of street numbers for verification of building identification.

3.) Review plans for adequate water supply for fire protection.

4.) Opportunity to dry-run through development prior to occupancy.

5.) Trustees

C. Review plans for comment.

D. Village Attorney

1.) Review necessary legal papers for dedication and easements, letter of credit and surety.

E. Mayor

1.) Receive and review the Developer's Preliminary Estimate of Cost Improvements.

F. Clerk-Treasurer

1.) Review plans for any conflicts/concerns with Village Local Laws.

2.) Issue Village permits and collect required fees.

3.) Responsible to release funds from Letter of Credit on behalf of Village.

4.) Receive Village Engineering fees from Developer on behalf of Village.

1.5 FEE SCHEDULE

1. Refer to Village Code Section 194A FEES

1.6 LETTER OF CREDIT

1. ESTABLISHMENT OF LETTER OF CREDIT

A. Upon receiving final Planning Board approval, the Developer's design professional of record shall submit a Preliminary Estimate of Improvement Costs to the Village Engineer together with a copy of the approved site plans. This estimate shall itemize all work items and be organized under six sections:
   1.) Sanitary Sewers
   2.) Storm Drainage
   3.) Grading and Erosion Control
   4.) Pavements and Sidewalks
   5.) Trees & Landscaping (including topsoil and seeding)
   6.) Miscellaneous (lighting, SWPPP inspections, etc.)

B. The Estimate of Improvement Costs shall include the following items:
   1.) Construction costs
   2.) Construction cost increase
   3.) 10% contingency of total construction costs
   4.) Survey monuments and required stake out
   5.) Record drawings
   6.) Street signs
   7.) Construction testing by independent testing agency
   8.) 5% Owner's guarantee
   9.) Village inspection services for dedicated facilities (5% min.)
   10.) Developer's engineering allowance

C. All recreation fees, Village Engineer review fees and Village Attorney fees must be paid in full to the Village prior to the issuance of final site plan approval from the Planning Board unless otherwise required by the Village. Do not include these fees in the Letter of Credit.

D. Upon approval of the Estimate of Improvement Costs, the Village Engineer will notify the Village Attorney and Village Mayor. The Developer shall obtain the Letter of Credit.

E. The Letter of Credit shall be written so as to comply with the terms and conditions specified by the Village, as set forth in an approved specimen copy on file with the Village Clerk.

F. The Letter of Credit shall be submitted to the Village Mayor together with a copy of the approved site plan.

G. The Letter of Credit acceptable to the Village Attorney shall be in place before the Village of Honeoye Falls can issue Building Permits.

H. The Letter of Credit shall provide for an automatic option of renewal, which will be sent to the Village Clerk a minimum of sixty (60) days prior to its expiration date. The Letter of Credit is to be renewed yearly. (Renewal is required one year from the date the letter is established and each year thereafter that the project is active).

I. Prior to each renewal date, the costs quoted in the Letter of Credit shall be reviewed by the Village Engineer. If inflationary trends are significant enough that the contingency amount will not cover the increase, the Letter of Credit dollar amount may require adjustment before renewal is permitted.

J. Refer to Use of Letter of Credit for additional requirements.

2. PARTIAL RELEASE OF LETTER OF CREDIT FUNDS

A. At such times the Developer may want to have partial funds released to cover work completed, the Developer shall obtain the Village's approval of said work.

B. The Developer's design professional shall prepare an estimate of work performed proportional to the amount of work completed to date. The estimate shall follow the original estimate format and item break down of the approved Letter of Credit and be submitted to the Village Engineer for review. The Developer's design professional shall complete revisions and re-submittals as needed based on the Village Engineer's comments. Upon approval, the Village Engineer will forward a recommendation to the Village Clerk-Treasurer for release of funds or reduction of the Letter of Credit amount.

C. Storm Sewer System: The Developer may request up to sixty percent (60%) of the funds allocated in the Letter of Credit for such work upon installation of the storm sewer systems. After approved testing and inspection an additional thirty percent (30%) may be requested. The remaining ten percent (10%) shall be released upon the Village's receipt of the approved Maintenance Bond.

D. Sanitary Sewer System: The Developer may request up to sixty percent (60%) of the funds allocated in the Letter of Credit for such work upon installation of the sanitary sewer systems. After approved testing and inspection an additional thirty percent (30%) may be requested. Testing of the sanitary sewer shall not take place before the road box is ready for binder course. The remaining ten percent (10%) shall be released upon the Village's receipt of the approved Maintenance Bond.

E. Road Grading and Pavements: Upon completion of the road box, subbase, weep, gutter or curb, sidewalks, and asphalt binder, the Developer may request up to ninety percent (90%) of the funds allocated in the Letter of Credit for such work. After the road top course has been installed, the Developer may request up to ninety percent (90%) of the funds allocated in the Letter of Credit for the top course. The remaining ten percent (10%) shall be released upon the Village's receipt of the approved Maintenance Bond.

F. Temporary Erosion and Sediment Controls: The Developer may request up to seventy percent (70%) of the funds allocated in the Letter of Credit for such work upon installation of the various temporary erosion and sediment controls. The remaining thirty percent (30%) may be requested upon removal of the temporary measures and completion of final restoration.

G. Retainage: An amount equal to ten percent (10%) of the work in place shall be retained by the Village for each release of Letter of Credit funds request. Retainage shall be applied to the following types of work: sanitary sewer systems; storm sewer systems; storm water management facilities; erosion and sediment control measures; pavements and sidewalks including subbase, fabric, gutters, curbs etc.; trees and landscaping including topsoil and seeding; and, lighting.

H. Release of Retainage: Retainage monies will not be released until the maintenance bond(s) are established.

I. Release of Owners Guarantee: Owner's guarantee will not be released until the dedication of intended facilities is complete and approved by the Village Board, unless otherwise agreed to by the Village.

3. USE OF LETTER OF CREDIT

A. The Letter of Credit shall be so written as to allow the Village to draw from the funds to perform any and all work if the Developer fails to diligently, systematically and expeditiously perform the work.

B. Should the Developer fail to perform in accordance with the Village standards and specifications or approved site plan, then the Village shall give written notice of such failure to the Developer. The Developer shall have a maximum of fifteen (15) calendar days to properly perform such work as outlined in the written notice. Failure of the Developer to so correct and perform the work within the time frame stipulated in the written notice, authorizes the Village to perform and properly complete such items stipulated in the written notice forthwith and to be reimbursed for the cost thereof under the Letter of Credit of the Developer, as if the funds were advanced to the Developer. The Letter of Credit shall provide for such authority to the approval of the Village.

C. All unanticipated engineering services related to the construction stage (e.g. additional design reviews, substantial or full time inspection services, etc.) that have not been paid from the Letter of Credit shall be charged directly to the Developer. The contingency item of the Letter of Credit can be used at the Village's discretion to reimburse these extra services. The Letter of Credit shall provide for such authority to the approval of the Village. A Certificate of Occupancy shall not be issued by the Village until such charges have been paid to the Village.

D. Such Letter of Credit shall be issued by a bank, bonding or surety company, or by the Developer with security acceptable to the Village and shall be approved by the Village Trustees and Village Attorney as to form, sufficiency and manner of execution.

1.7 MAINTENANCE BOND

1. Upon completion of the required work under the Letter of Credit, a Maintenance Bond shall be established whereby the Developer agrees to maintain all of the improvements and work done as required under the approved site plans. All Maintenance Bonds shall be for an amount equal to one hundred percent (100%) of the original Letter of Credit construction value for the respective work, but in no case shall be less than five thousand ($5,000) dollar face value.

2. In as much as weather conditions dictate practicality of performance, as well as accessibility for appropriate inspections, all Maintenance Bonds shall commence no earlier than June 1 or no later than October 1 and expire two years thereafter. The warranty period shall not commence until completion of all work, including punch list work under the Letter of Credit.

3. The Developer is responsible to have all necessary repairs completed during the warranty period. In emergencies, the Village may correct or make repairs to any defect in the work and charge the cost of said work to the Developer or the Developer's bonding company.

4. Near the end of the warranty period the Village will establish a "warranty punch list". The Developer shall have a maximum of fifteen (15) calendar days to correct the identified items. Failure of the Developer to so correct the work within the time frame stipulated authorizes the Village to perform and properly complete such items stipulated in the "warranty punch list" forthwith and charge the cost of said work to the Developer or the Developer's bonding company.

5. Maintenance Bonds need not be written to include all dedicated facilities and improvements in a single bond. However, no more than three maintenance bonds are acceptable for any one project. If the developer chooses, Maintenance Bonds may be established at the completion of the facilities or improvements listed below:

   A. Sanitary and storm sewer systems including pump stations, manholes, laterals, etc. - A Sewer Maintenance Bond shall be furnished to the Village of Honeoye Falls for a two year period commencing after final acceptance by the Village and in an amount equal to one hundred percent (100%) of the total construction value of the sanitary and storm sewer system work.

   B. Roadway construction including road foundation items, asphalt pavement, gutters, curbs, sidewalks, catch basins, etc. - A Highway Maintenance Bond shall be furnished to the Village of Honeoye Falls for a two year period commencing after final acceptance by the Village and in an amount equal to one hundred percent

(100%) of the total construction value including: street work, sidewalks, street landscaping, street lighting, catch basins and appurtenances.

C. Drainage facilities including permanent storm water management facility (SWMF), creek and ditch work, erosion control, etc. - A Drainage Facilities Maintenance Bond shall be furnished to the Village of Honeoye Falls for a two year period commencing after final acceptance by the Village and in an amount equal to one hundred percent (100%) of the total construction value of the permanent storm water management facility, landscaping associated with the SWMF, creek and ditch work, erosion control etc.

6. A two year Letter of Credit in the amount equal to ten percent (10%) of the total construction value may be furnished to the Village in lieu of each Maintenance Bond as described above but in no case shall be less than five thousand ($5,000) dollar face value.

1.8 RECORD DRAWINGS

1. Upon approval of the record drawing by the Village Engineer, provide one 4-mil reproducible mylar, two sets of prints and a digital file (AutoCAD format) to the Village for record purposes. The digital AutoCAD file shall in a version and format acceptable to the Village Representative. The digital file should provide individual layers for the symbols and text of each utility with a key listing the drawing layers.

2. Provide record drawings that have been prepared, certified and sealed by a New York State licensed professional engineer or land surveyor. Provide the information listed below at a minimum using a minimum scale of 1"=50'. In addition to the list below the record drawings shall indicate the following: pavement, sidewalk, right-of-way lines, lot numbers, house numbers, street names, property lines, and north arrow.

3. Record drawings need to be provided to Village of Honeoye Falls for: dedicated facilities; non-dedicated facilities inside the ROW; and, stormwater management facilities.

4. Record drawings shall include the following information:

   A. <u>Sanitary Sewers</u>

      1.) <u>Manholes</u>
      - Designation label
      - Interior Diameter
      - Rim elevations
      - All invert elevations with directions noted. For drop manholes provide upper and lower inverts and denote as "Drop Manhole"
      - Location: Offset from centerline of parallel and intersection road. Provide street centerline stationing and offset.

2.) Sewer Mains
- Distance, diameter, material and slope of pipe
- Offset from easement limit, where applicable

3.) Laterals
- Wye distance from downstream manhole
- Diameter and material
- Clean out location with survey ties and offset from wye
- Lateral depth at clean-out

4.) Easements
- Liber and page number of filed easement
- Easement width
- Easement owner

B. Storm Sewers - Same information as Sanitary Sewers plus the following:

1.) Catch Basins/Drainage Inlets (Dedicated)
- CB/DI designation label
- Grate rim elevation
- All invert elevations with direction noted
- Location (street centerline station and offset)

2.) Culverts (Dedicated)
- Material, diameter, length and invert elevations
- Note end sections and rip rap

C. Water System
- Vertical separation at all sewer (sanitary and storm) crossings
- Location of main (street centerline offset)
- Material and diameter of main
- Location of hydrants, inline and guard valves
- Location of curb box and service taps (street centerline station and offset)
- Survey ties for in-line and curb valves
- Liber and page number of filed easement
- Easement width
- Easement owner

D. Private Utilities
- Liber and page number of filed easement
- Easement width
- Easement owner
- Location and depth of street crossing
- Material and sizes of conduits, cables, conductors.
- Identify owner of utility

E. Streets
- Location of monuments with survey ties
- Sidewalk: location and width
- Street trees: location and species
- Right-of-way width
- All deviations from the approved design relative to vertical and horizontal alignment shall be noted and are to be incorporated into these drawings.

F. Streetlights
- Location of poles
- Location and size of conductors
- Locations and ratings of disconnecting means and over current devices
- Basic one-line diagram

G. Certifications, as applicable:

1.) Storm Water Management Facility (SWMF): The record drawings shall include sufficient information for the design professional of record for the SWMF to determine and certify the SWMF as constructed meets the design intent and was constructed in accordance with the approved site plans, approved drainage calculations, NYSDEC regulations and approved SWPPP, as appropriate. As a minimum record data shall include pool elevation, outlet structure construction, inlet pipe locations and inverts, micro pool depths and volumes, discharge piping, spillway, pond berm, area and depths of environmental vegetative zones following stabilization of upland area, permanent erosion control features, and installation of plant materials. Facility contours shall be provided and the elevations versus storage volume relationship for capacity and function (deeper versus shallower) used in final approved calculations verified. This certification shall be provided to the Village Engineer prior to approval of completed works.

2.) Pre-treatment System: The design professional of record for the pre-treatment system shall certify the system was constructed in accordance with the final calculation, prior to the Village issuing the Certificate of Occupancy.

1.9 VILLAGE PERMITS

1. Right of Way: A permit is required from the Village Administrator or designated representative for any and all work contained within the public right of way. Such work may include, but is not limited to, utility pavement cuts, new driveway construction or re-surfacing, curbing removal, sidewalk repair or replacement, and tree work.

2. Sanitary Sewer: A permit for installing new or repairing an existing house lateral, connecting to, extension of, or repair of any existing sewer or installation of any new sewer is required from the Village Administrator or designated representative.

3. Water: A permit for installing new or repairing an existing house service, connecting to, extension of, or repair of any existing water service or installation of any new water service is required from the Village Administrator or designated representative.

4. Storm Sewer: A permit for installing new or repairing an existing storm lateral, connecting to, extension of, or repair of any existing storm sewer or installation of any new storm sewer is required from the Village Administrator or designated representative.

1.10 SPECIAL CONDITIONS

1. General: This Section has been incorporated to provide a place in which special variations from the standard documents can be found. Normally these Special Conditions will take precedence over the standard data and information provided elsewhere in the handbook. However, the Village reserves the right to modify these documents upon suitable public notice.

2. Safety & Health Conditions: The Contractor shall comply with all New York State Safety Requirements and with the Department of Labor, Safety and Health Regulations for Construction promulgated under the Occupational Safety and Health Act of 1970 (PL 91-596) and under Section 107 of the Contract Work Hours and Safety Standards Act (PL 91-54). The Village and its agents will not be responsible for and will not have control or charge of construction means, methods, techniques, sequences, procedures or for safety precautions and programs in connection with the work.

3. Warranty Period: The Developer shall notify the Village Clerk forty five (45) days prior to the expiration date of the Warranty Period. The Village will then undertake an inspection of the work and prepare a punch list of work to be corrected, if any, in order for the Developer to make necessary repairs prior to the completion of the warranty period or warranty will be extended.

4. Subdivision Regulations: The Village has adopted Subdivision Regulations (see Chapter 161 of Village Code, Subdivision Regulations). In the event of any conflict or inconsistency between these Subdivision Regulations and the Design Criteria and Construction Specifications, it is the responsibility of the Applicant to bring such alleged conflict to the Planning Board's attention in writing for a decision.

5. Building Permit Issuance: No building permit will be issued for any building within a subdivision until the final plat of the subdivision has had the signature of the Planning Board Chairperson affixed and proof of filing in the Monroe County Clerk's office (including liber and page numbers assigned by the County Clerk) has been submitted to the Code Enforcement Officer.

6. Certificate of Occupancy: When a Certificate of Occupancy is requested for a building within a subdivision prior to the completion of all of the subdivision improvements as shown on the approved site plan, in addition to other requirements as may be required by the Code Enforcement Officer, the street serving the building shall be completed to a degree satisfactory to the Village Engineer. A Certificate of Occupancy shall not be issued by the Village until engineering related charges for services related to the construction have been paid to the Village

7. Time Table: The Developer shall indicate a proposed construction timetable in writing to the Planning Board as part of the required submission materials for project approval.

1.11 DEDICATION REQUIREMENTS

1. An offer of dedication of any street, road, right of way, park land, playground area, easement, conservation area or any utility or improvement thereof by an Owner/Developer shall be as prescribed by the statutes of New York State and subject to the approval of the Village Board of Trustees and the Village Attorney.

2. Consideration for street dedication, or portion thereof, that is part of a subdivision development will be made only after the following conditions have been met or the following items have been submitted:

   A. All standards as set forth in the Village Code; Subdivision Regulations and Design Criteria and Construction Specifications have been met and approved by the Village Engineer.

   B. The subdivision development as originally approved is substantially complete when seventy five percent (75%) of homes have Certificate of Occupancies issued.

   C. When a subdivision development has been approved to be constructed in phases, a street in a single phase of the development that is substantially complete may be considered for dedication at that time.

   D. In order to provide for the health, safety and general welfare of the residents who reside on a road or street intended for eventual dedication, the Village of Honeoye Falls will consider, subject to an agreement executed by both parties, providing such services as snow plowing to permit the safe passage of emergency vehicles and school buses, prior to the final completion and/or approval by the Village Representative. The Village may require that a temporary turn-around for these vehicles is provided, that the program of erosion and dust control be followed and that whenever possible a secondary or work road be used for construction related vehicles during the construction of the remaining homes in the development.

   E. The Village will require security for the entire street or portion thereof or other improvements in the form of a Letter of Credit and a Maintenance Bond in an amount and for a length of time as approved by the Village Board of Trustees and Village Engineer. Refer to Maintenance Bond Section for additional information.

F. Submit a formal offer of dedication describing the street(s), shown on the subdivision map or road dedication map.

G. Submit a monumentation map showing placement of ROW monuments and letter of certification from the design professional's NYS licensed surveyor stating the monuments have been properly set in accordance with Village Specifications.

H. Submit a Warranty Deed conveying title of street(s) described to the Village of Honeoye Falls. Submit transfer tax form and equalization form.

I. A guaranteed certification of title showing the principal at the time of dedication and that the described street(s) are free from liens and all encumbrances.

J. Submit Release/Discharge of Mortgages for dedicated parcels.

K. Submit additional information as may be requested by the Village Attorney.

L. The Village Attorney shall review the information and if acceptable make a recommendation for dedication to the Village Board and schedule a public hearing.

M. The Village Board will hold a public hearing and approve dedication.

1.12 EXPIRATION

1. Unless otherwise specified or extended by the Planning Board, decisions on all applications shall expire once the applicant fails to begin actual construction or to comply with the conditions of said authorization within eighteen (18) months from the filing date of such decision thereof.

1.13 INSURANCE

2. The Developer's contractor shall secure and maintain for the duration of the development and warranty period such insurance policies as will protect the contractor, subcontractor and the Owner, from claims for bodily injuries, death or property damage, which may arise from operations under the contract or permit whether such operations be by the contractor or by any subcontractor or anyone employed by them directly or indirectly. The following insurance policies will be required:

General Liability	General Aggregate	$2,000,000
	Products - Completed Operations Aggregate	$2,000,000
	Personal Injury and Advertising	$1,000,000
	Each Occurrence	$1,000,000
	Fire D am age (Any one fire)	$50,000
	Medical Expenses (Any one person)	$5,000
Automobile Liability	Combined Single Limit	$1,000,000
Excess Liability, Umbrella Form	Each Occurrence	$3,000,000
Worker's Compensation and Employer's Liability	Each Accident	$100,000
	All Persons by Disease	$500,000
	Each Person by Disease	$100,000

3. The Developer's contractor shall also name the Village of Honeoye Falls as additional insured to the above stated limits and indemnify and hold the Village of Honeoye Falls harmless from any loss, injury, damage or defense costs caused by contractor or his employees or agents, in the execution of the work herein. A copy of the insurance certificate shall be provided to the Village prior to issuance of a building permit.

1.14 HARDSHIP CRITERIA AND PROCEDURES

1. An applicant whose application to the Planning Board has been denied may apply to the Zoning Board of Appeals for relief on the grounds that the Planning Board's standards are working a hardship upon the applicant. In order to prove the existence of a hardship, the applicant shall establish that:

   A. The property is incapable of earning a reasonable return, regardless of whether that return represents the most profitable return possible, if the application is denied. "Dollars and cents proof" shall be presented to the Zoning Board of Appeals by the applicant that demonstrates to the satisfaction of the Zoning Board of Appeals that the applicant's claim of hardship is well-founded.

   B. The property cannot be adapted for any other use permitted by the Zoning Ordinance in the Zoning District in which the property is located, whether by the current owner or by a purchaser, which would result in a reasonable return.

   C. In an application for demolition, reasonable good faith efforts to find a purchaser interested in acquiring the property and preserving it was made and has failed.

PART 2 - DESIGN

2.1 GENERAL

1. The development of property shall conform to zoning restrictions established by the Village of Honeoye Falls. It shall also conform with all regulations established herein as well as appropriate laws, rules, and regulations established by all governing bodies having or claiming jurisdiction over various phases of the development.

2. Where a conflict arises between these regulations and those of other agencies 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 development.

3. All developments are subject to these design requirements. This section has been written to apply to subdivisions and site plan review, but to the extent the standards are applicable they shall also be followed for other developments within the Village.

4. In addition to the required improvements specifically referred to elsewhere in these regulations, developments shall provide for all other customary elements of street construction and utility service which may be appropriate in each locality as determined by the Planning Board upon consultation with the Village Engineer. Such elements may include, but shall not be limited to, street pavement, gutters, storm water, 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 Engineer, and underground service connections to the property line of each lot shall be installed before the street is paved. All street improvements and other construction features of the development shall conform to Village specifications and be subject to approval by the Village Engineer.

2.2 BASIS OF DESIGN

1. The term “utilities” as used herein shall be defined as roads, drains, sewers, water mains and appurtenances thereto which will, upon acceptance by the Village, be turned over to the Village or appropriate authority for maintenance and operation.

2. Utilities shall be designed to conform to the topography of the property and existing utilities on adjacent streets or properties. Developers shall satisfy themselves by preliminary investigation, and consultation with appropriate Village officials, as to the adequacy of adjoining facilities upon which their property must rely for service, most particularly water mains, sewers, drains and culverts.

3. Standards for required improvements shall be appropriate for the public use and demand anticipated upon full development, and shall be of sufficient size to accommodate development of proximate areas if these are considered by the board to be logically served through the subject property.

4. Developers bear the responsibility of providing sound engineering design of all utilities, subject to the approval of the Village. The design shall be prepared by a professional engineer licensed to practice in New York State, who shall have had experience in the design of requirements set forth herein.

5. Highway Frontage

   A. The Planning Board shall control the number of entrances and exits onto and off from State, County and Village streets and roads in order to promote and protect the health, safety and welfare of the Village residents.

   B. The Planning Board reserves the option to require the applicant to grant to the Village such easements as are required to provide access to contiguous properties onto a public highway via frontage or service roads, common driveway, or such other roads as are require so that the number of entrances and exits onto and off from State County and Village streets and roads are not increased.

6. The Planning Board may modify the specified requirements in any individual case where, in the Board's judgment, such modification is in the public interest or will avoid the imposition of unnecessary individual hardship.

2.3 STREET DESIGN

1. Refer to Chapter 161 of Village Code.

2.4 STREET ARRANGEMENT

1. Street systems shall be designed with due regard to the need for: convenient traffic access and circulation; traffic control and safety; access for emergency equipment vehicles; storm water drainage; sanitary disposal. Street shall be designed to accommodate the prospective traffic and so arranged as to separate through traffic from neighborhood traffic in so far as practicable.

2. The street is contiguous developments shall be coordinated so as to compose a convenient system. Where a development adjoins undeveloped land the development's streets shall be laid out so as to provide suitable future street connections with the adjoining land. A street thus temporarily dead ended shall be constructed to the property line and shall be provided with a temporary turn around of the same dimensions as for permanent dead end streets in excess of two hundred feet (200'), with a notation on the subdivision plat providing for temporary easements for the turn around until such time as the street is extended.

3. 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 development, and which is not scheduled for development at the same time.

4. 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.

5. Where a development abuts 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 non-access 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.

6. Where a development borders or contains an existing or proposed railroad right-of-way or controlled access highway right-of-way, the Planning Board may require a street approximately parallel to and on each side of such right-of-way, at a distance suitable for the appropriate use of the intervening land. Appropriate uses to consider are parkland within residential districts, or business, commercial or industrial purpose in appropriate districts. Such distances shall also be determined with due regard for the requirements of approach grades and future grade separation.

7. Blocks generally shall be not less than four hundred feet (400') nor more than twelve hundred feet (1200') in length. In blocks exceeding nine hundred feet (900') in length, the Planning Board may require the reservation of a twenty foot (20') wide easement through the block to provide for the crossing of underground utilities. Street jogs with centerline offsets of less than one hundred twenty five feet (125') feet shall be avoided.

2.5 PRIVATE ROADS & DRIVES

1. The Planning Board shall review all private roads and drives in relation to access, ability to support traffic loads, traffic circulation, drainage and maintenance. All private roads shall be named and marked with approved sign for adequate identification for emergency and fire situations. The conditions and standards are as follows:

   A. Right of Way

      1.) A private road or drive may serve a maximum of four (4) housing units.

      2.) A right of way for a single lot that is five hundred feet (500') or more in length shall be a minimum thirty feet (30') in width and shall be owned in fee by the lot owner.

      3.) A right of way serving two, three or four lots shall be a minimum fifty feet (50') in width and each lot owner shall own a fee interest in a part of said right of way that is a minimum of twenty feet (20') in width. Ownership of said twenty foot (20') wide parcel may be in common with others.

      4.) Private road shall be centered in the right of way.

   B. Construction Specifications

      1.) The minimum width of the traveled way for one thru four lots shall be twenty feet (20').

2.) Road subgrade (native earth beneath road base) to be shaped to a crown and compacted to prevent ground water from becoming trapped in road base.

3.) Road base shall consist of a minimum nine inches (9”) run of bank gravel meeting NYSDOT Item 304, thoroughly compacted in two lifts.

4.) Roadside swales are to be provided. Swale inverts to be a minimum ten inch (10”) lower than road subgrade. Swales shall be graded to a minimum slope of one percent (1%) to provide positive drainage to the nearest watercourse. Swale side slopes shall be graded at a minimum one unit vertical to three units horizontal slope and seeded to provide healthy growth of grass.

5.) There shall be a minimum two feet (2’) between property line and the toe of any road slope.

C. Drainage easements shall be reserved where road runoff must cross private property. Easement width is to be established by Village Engineer.

D. Turning radius shall be a minimum of forty feet (40’) to the inside radius or as required to safely turn local emergency vehicles.

E. A turn around, either cul de sac or tee type, shall be provided at the end of each private drive and shall be designed to accommodate local emergency vehicles.

F. Private road design shall be submitted to the Village Engineer for review at Planning Board’s discretion. Cost for review shall be responsibility of developer.

G. Upon completion of private road construction, developer’s engineer shall submit written certification that the road is constructed in accordance with the approved plans and specifications.

2.6 DEAD END STREET

1. Where a street does not extend to the boundary of the development 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. 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 thirty feet (30’) wide for pedestrian traffic or utilities. A cul-de-sac of a minimum right-of-way radius of ninety two and one half feet (92.5’) feet shall be provided at the end of any permanent dead-end street. For greater convenience to traffic and more effective police and fire protection, the length of permanent dead-end streets shall in general not be longer than six hundred feet (600') or six times the minimum lot width, whichever is less. Such distance shall be measured to the center point of the cul de sac.

2.7 ROAD DESIGN

1. Refer to Chapter 161 of Village Code

2.8 STREET DESIGN STANDARDS

1. All streets shall be designed and constructed to conform to the requirements set forth in the Chapter 161 of Village Code - Land Subdivision Regulations and specifications contained herein.

2. Where strict imposition of these standards could result in excessive demands upon the developer, they may be modified by the Planning Board, subject to the approval of the Village Board of Trustees, and the Village Engineer. Changes shall ensure safe vehicular operation. Standards of the American Association of State Highway Officials shall govern in determining safe operating speeds and signing requirements.

3. Standards for streets in non-residential subdivisions and other developments with an internal circulation network shall be appropriate for the use intended and shall be established by the Planning Board upon advice by the Village Engineer.

4. Collector streets which do not service an area containing at least one hundred fifty (150) dwelling units, under ultimate area development, may be considered as minor streets for purposes of design standards. The service area of a collector street includes those dwelling units on minor streets which feed into the collector street.

	Typical Street	Collector Street
Min width of R.O.W.	50’	60’
Min. width of pavement	20’	24’
Min. radius of horizontal curves (a)	150°	300°
Min. length of vertical curves	200’ but in no case less than 20’ for each 1% difference of grade	200’ but in no case less than 30’ for each 1% difference of grade
Min. tangent length between curves ($_{b)}$	100’	200’
Maximum grade	6%	6%
Minimum grade	0.5%	0.5%
Minimum sight distance	200’	300’

Notes for Table

(a) Radius of horizontal curves shall be measured to the centerline of the street.

(b) Sight distance shall be measured between two points along the centerline of the street on a straight line entirely within the street right-of-way and clear of obstructions. One of the points shall be six inches (6") above the street surface and the other three feet nine inches (3.75') above the street surface.

2.9 STREET INTERSECTIONS

1. Intersections of arterial streets shall be held to a minimum and spaced at least one thousand (1000') apart, and intersections of collector streets by other streets shall be at least eight hundred feet (800') apart. Cross (four cornered) street intersections shall be avoided insofar as possible, except at intersections where both streets are at least of collector designations. Between offset intersections there shall be a distance of at least one hundred fifty feet (150'). Within fifty feet (50') of an intersection streets shall be approximately at right angles and in no case shall the angle of intersection be less than seventy five degrees (75°) without additional channelization. Minimum curb radii shall depend on the intersection street types; and shall be as follows:

Collector with collector	35'
Minor with collector	30'
Minor with minor	30'

2. Access streets into the development from an arterial street shall have minimum curb radii of forty feet (40'). All property corners at street intersections shall be rounded with a radius of twenty feet (20'), or have comparable cut-offs or chords, as approved by the Planning Board. Within triangular areas formed by the intersecting street lines, for a distance of seventy five (75') from their intersection, and the diagonals connecting the end points of these lines, visibility for traffic safety shall be provided by exclusions of plantings, structures or other impairments to visibility.

3. Grades within the intersection should not exceed one percent (1%), while they should not exceed one and one half percent (1.5%) for a distance of fifty foot (50') from the intersection. From fifty feet to one hundred feet (50' - 100'), the grades should not exceed three percent (3%), and in no case shall they exceed five percent (5%).

4. Triangles, circles or other traffic channeling islands may be required at intersections where current or anticipated traffic conditions indicate their use for traffic control or safety.

2.10 STREET GRADING & SHOULDERS

1. Areas within street rights-of-way shall be graded as necessary to eliminate any slopes steeper than one foot vertical in three feet of horizontal distance. Street shoulders shall not exceed a slope of ten percent (10%) at right angle to the street centerline. Shoulders and all other unpaved areas within the street right-of-way shall be treated with topsoil and seeded to grass except where noted differently on the Typical Road Section.

2.11 CURBS & GUTTERS

1. All new streets and roads shall be designed with concrete curb or concrete gutter as directed by the Planning Board. Existing streets or roads that are improved as part of re-development of adjacent properties shall be considered as new for purposes of this section.

2.12 SIDEWALKS

1. Concrete sidewalks with a minimum width of five feet (5') shall be installed in conjunction with all new street improvements in accordance with Typical Road Section and shall be provided in locations where they are deemed to be appropriate and in the interest of public safety or convenience and by the Planning Board. Walks shall be required on both sides of the street. Walks shall be at least five feet (5') wide. Sidewalks shall be constructed to the dimensions shown on the Typical Section and at locations shown on the approved plans. All work shall comply with the most recent requirements of the Americans with Disabilities Act.

2.13 WATERCOURSES

1. Where a watercourse separates a proposed street from abutting property, provision shall be made for access to all lots by means of culverts or other structures of a design approved by the Village Engineer. Where a development is traversed by a water course, drainage way$_1$ channel, or stream, or contains a pond which crosses a property line, there shall be provided a storm water easement or drainage right-of -way. This could be a private or municipal easement as determined by the village. In no case shall the easement be less than twenty feet (20') in width.

2.14 LIGHTING

1. Street lighting facilities shall be installed in conjunction with all new street improvements in accordance with the Lighting Ordinance of the Village Code and as required by the Planning Board. The style, intensity, underground conduit and locations of street lighting shall meet with the requirements set forth by the Village Code Lighting Ordinance, Planning Board and Electric Utility Corporation having jurisdiction in the service area.

2.15 MONUMENTS

1. Permanent survey monuments shall be set in the boundary of right-of-way at intersecting streets, PC and PT of curves though the P.I. of short curves may be used instead where such is practical, at the discretion of the Village Engineer. Monuments shall be placed on one side of the street only and at only one corner of the intersecting streets Adjacent monument points shall be visible from one to another.

2. Monument locations shall be shown on the subdivision plat; field notes of ties to monuments or a tie sheet shall be submitted to the Village Engineer after installation of monuments.

3. Monuments shall be of stone or concrete and not less than four inch (4") in diameter or square and not less than forty two inch (42") 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.

2.16 TREES & LANDSCAPING

1. Existing Trees Protection: Trees and or stands of trees to be saved shall be identified by Village Representatives. Prior to any construction activities, protective tree barriers shall be installed a minimum three foot (3') beyond the canopy drip-line of the trees and/or stands of trees. This barrier shall completely surround the critical root zone of these trees. Protective tree barriers shall consist of post and rail fencing, a minimum of four foot (4') high. A 2" x 4" post and double 1" x 4" rail is recommended. Metal staked four feet (4') orange polyethylene laminar safety netting may be used, and is subject to the approval of the Planning Board. All tree fencing must be maintained throughout the land disturbance process and building construction, and shall not be removed until after all construction and landscaping activities are completed. No disturbance or storage of equipment and materials shall occur within the protective zone.

2. General: The developer shall take adequate measures to preserve desirable existing trees in suitable locations within the development and provide new trees within the R.O.W.

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

   B. The contractor shall place trees at the locations shown on the plans and as directed by the Planning Board. Trees shall be a minimum of two inch (2") in diameter unwrapped and placed within the curbside tree lawn (green strip between sidewalk and road) or in a location approved by the Planning Board. Spacing shall be forty foot (40') to sixty foot (60') apart, depending on the site and the tree species. Trees shall be chosen from the urban tree list provided by the Village according to site. Tree species are subject to the recommendations of the Village Conservation Board and the approval of the Planning Board. Trees shall not be planted next to fire hydrants and house laterals and services.

3. Plant Quality: Plants shall be in accordance with American Standard for Nursery Stock Z60.1 latest version of rules and grading adopted by the American Association of Nurserymen.

4. Protection Against Dying: All root balls of all plants shall be adequately protected at all times from the sun and from drying winds. All balled and burlapped plants which cannot be planted immediately upon delivery shall be set on the ground and shall be well protected with soil, mulch or others acceptable material. Trees shall be watered as necessary. Plants shall not remain unplanted for longer than two days after delivery.

5. Replacement Trees:

   A. The Contractor shall replace, without cost to the Village, and as soon as weather conditions permit and within a specified planting period, all dead plants and all plants not in vigorous, thriving condition, as determined by Village Representative. The plants shall be free of dead or dying branches and branch tips, and shall bear foliage of a normal density, size and color. Replacements shall closely match adjacent specimens of the same species. Replacements shall be subject to all requirements stated in this specification.

   B. The Contractor shall make all necessary repairs due to plant replacements. Such repairs shall be done at no extra cost to the Village.

   C. The Guarantee of all replacement plants shall extend for an additional period of two years from the date of their acceptance after replacement. If replacement plant material is not acceptable during or at the end of the said extended guarantee period, the Village may elect subsequent replacement or credit for each item.

6. Final:

   A. At the end of the guarantee period, the Village Representative shall inspect all guarantee work for the final acceptance upon written request of the Contractor. The request shall be received at least ten (10) calendar days before the anticipated date for final inspection.

   B. Upon completion and inspection of all repairs or renewals necessary, in the judgment of the Village representative at the time, the Engineer shall certify in writing to the Village as to the Final Acceptance of the project.

7. Recommended Street Trees:

   SMALL TREES (less than 30') suitable for under utility wires or restricted spaces.

   - Acer buergerianum TRIDENT MAPLE
   - Acer campestre HEDGE MAPLE
   - Acer tartaricum ssp. Ginnala (formerly Acer ginnala) AMUR MAPLE
   - Acer tataricum TATARIAN MAPLE
   - Acer truncatum SHANTUNG MAPLE or PAINTED MAPLE
   - Amelanchier spp. SERVICEBERRY SPECIES and HYBRIDS (tree forms)
   - Carpinus caroliniana IRONWOOD, MUSCLEWOOD, or AMERICAN HORNBEAM
   - Cercis canadensis EASTERN REDBUD
   - Crataegus crus-galli var. inermis THORNLESS HAWTHORN

- Crataigus punctata var. inermis ‘Ohio Pioneer’ OHIO PIONEER HAWTHORN
- Crataegus viridis ‘Winter King’ WINTER KING HAWTHORNE
- Fraxinus excelsior ‘Aureafolia’ GOLDEN DESERT EUROPEAN ASH
- Fraxinus pennsylvanica ‘Johnson’ LEPRECHAUN GREEN ASH
- Koelreuteria paniculata GOLDENRAINTREE
- Malus spp. FLOWERING CRABAPPLE (disease resistant varieties)
- Parrotia persica PERSIAN PARROTIA
- Prunus ‘Accolade’ ACCOLADE FLOWERING CHERRY
- Prunus ‘Snow Goose’ SNOW GOOSE CHERRY
- Prunus virginiana ‘Canada Red Select’ CANADA RED CHOKECHERRY
- Pyrus betulaefolia ‘Southworth’ and ‘”Edgedell’ DANCER ORNAMENTAL PEAR and EDGEWOOD CALLERY PEAR
- Pyrus calleryana ‘Jaczam’, ‘Jilzam’, ‘Valzam’, and ‘Cleprizam’ JACK, JILL, VALIANT, and CLEVELAND PRIDE CALLERY PEARS
- Pyrus fauriei ‘Westwood’ KOREAN SUN PEAR
- Pyrus ussuriensis ‘Mountain Frost’ and ‘MorDak’ MOUNTAIN FROST and PRAIRIE GEM USSURIAN PEARS
- Robinia pseudoacacia ‘Globe’ and ‘Bessoniana’ GLOBE and BESSONIANA BLACK LOCUST
- Syringa reticulata JAPANESE TREE LILAC (single stem)
- Tilia cordata ‘Halka’ SUMMER SPRITE LITTLEAF LINDEN
- Zelkova serrata ‘Schmidtlow’ WIRELESS JAPANESE ZELKOVA

*Some trees above not suitable for high wind settings or exposure to high levels of salt.

<u>MEDIUM to LARGE TREES</u> (greater than 30’) suitable for city environment plantings set away from overhead utility wires.

- Acer x freemanii FREEMAN MAPLE
- Acer miyabei MIYABEI MAPLE
- Acer pseudoplatanus SYCAMORE MAPLE
- Acer rubrum RED MAPLE (selected cultivars)
- Acer saccharum SUGAR MAPLE
- Aesculus x carnea RED HORSECHESTNUT
- Alnus glutinosa EUROPEAN or BLACK ALDER
- Betula nigra ‘Cully’ and ‘BNMTF’ HERITAGE and DURA-HEAT RIVER BIRCH
- Carpinus betulus EUROPEAN HORNBEAM
- Catalpa speciosa NORTHERN CATALPA
- Celtis occidentalis COMMON HACKBERRY
- Cladrastis kentukea YELLOWWOOD
- Fraxinus americana WHITE ASH
- Fraxinus excelsior ‘Hessei’ HESSEI EUROPEAN ASH

- Fraxinus 'Northern Gem' and 'Northern Treasure' NORTHERN GEM and NORTHERN TREASURE ASH
- Fraxinus pennsylvanica 'Cimmaron' CIMMARON GREEN ASH
- Ginkgo biloba GINKGO
- Gleditsia triacanthos var. inermis THORNLESS HONEYLOCUST (selected cultivars) *avoid if possible, susceptible to breakage!
- Gymnocladus dioicus KENTUCKY COFFEETREE
- Liriodendron tulipfera TULIPTREE or TULIP POPLAR
- Nyssa sylvatica SOUR GUM or BLACK GUM
- Ostrya virginiana AMERICAN HOPHORNBEAM
- Phellodendron amurense AMUR CORKTREE
- Platanus x aceriflolia LONDON PLANETREE
- Prunus sargentii SARGENT CHERRY
- Pyrus calleryana CALLERY PEAR (suggest 'Redspire') *avoid others if possible, susceptible to breakage!
- Quercus coccinea SCARLET OAK
- Quercus imbricaria SHINGLE OAK
- Quercus robur ENGLISH OAK
- Quercus rubra NORTHERN RED OAK
- Styphnolobium japonicum (Sophora japonica) JAPANESE PAGODATREE or SCHOLARTREE
- Tilia americana BASSWOOD
- Tilia cordata LITTLELEAF LINDEN (cultivars)
- Tilia x euchlora CRIMEAN LINDEN
- Tilia tomentosa SILVER LINDEN
- Ulmus americana AMERICAN ELM CULTIVARS
- Ulmus x species ELM HYBRIDS
- Zelkova serrata JAPANESE ZELKOVA

*Some trees above not suitable for high wind settings or exposure to high levels of salt.

*Please contact the Cornell Cooperative Extension or NYS Department of Environmental Conservation if additional information is required.

2.17 FLOOD HAZARD PROTECTION

1. Flood hazard prevention shall include the control of soil erosion of land surface and drainage channels and the prevention of inundation and excessive ground water seepage by comprehensive site grading and the establishment of adequate elevations of buildings, building openings and roadways above the observed, anticipated or computed water levels of storm sewers, streams, channels, flood plains, detention basins and swales.

2. All development proposed within the special Flood Hazard Area as defined by the Federal Insurance Administration shall comply with the various regulations set forth by

the Federal Insurance Administrator. Development within or adjacent to the floodplain shall comply with current zoning, local laws and regulations.

3. Particular attention shall be paid to development in the vicinity of Honeoye Creek and its' floodplain, and no alteration of the existing characteristics of the areas shall take place without the specific approval of the Village as to the adequacy of the protective measures taken, if any, and the effects of such development on upstream and downstream reaches of the watercourse and adjacent properties.

2.18 EROSION CONTROL

1. Appropriate erosion and sediment control measures shall be incorporated in the project design and shall be in accordance with regulations promulgated by the State of New York and by the New York Guidelines for Urban Erosion and Sediment Control published by the Empire State Chapter, Soil and Water Conservation Society and as needed based upon site conditions encountered in the field. The design professional shall include all appropriate notes and details on the site plan pertaining to specific erosion control measures to be used. The Developer shall be responsible for the installation and maintenance of the control measures indicated or as required pursuant upon actual site conditions.

2. In order to assure that the surrounding land and watercourses will not be subjected to siltation or erosion the Planning Board may require the developer to follow additional erosion control practices as it deems necessary. The developer shall consult with the Village Engineer to determine whether or not additional procedures are to be put into practice. Such procedures may include:

   A. Installing and maintaining temporary sedimentation basins at the point or points of storm water discharge from the property.

   B. Exposing the smallest practical area of land at any one time during development.

   C. Provision for temporary vegetation and/or mulching to protect critical areas.

   D. Provision for adequate drainage facilities to accommodate effectively the increased runoff caused by changed soil and surface conditions during and after development.

   E. Fitting of the development plan to the topography and soils so as to minimize the erosion potential.

   F. Retention and protection of natural vegetation wherever possible.

   G. Installation of permanent final vegetation and structures as soon as practicable.

   H. Provision of adequate protective measures when slopes in excess of ten percent (10%) are graded; and minimizing such steep grading.

   I. Provision for interceptor swales and sedimentation basins along the lower edges of all developments, and these shall be shown on the plans.

3. All erosion and sediment control measures are to be in effect and approved by the Village Administrator prior to commencing any construction activities.

2.19 DUST CONTROL

1. The developer shall take all necessary measures to control dust resulting from his operations and to prevent spillage of excavated material on public roads. When directed by the Village Representative, the developer shall apply calcium chloride and or water where directed and in such quantities and at such frequencies as may be required to control such dust and prevent it from becoming a nuisance to the surrounding area.

2.20 EASEMENTS

1. It shall be the responsibility of the Developer to furnish easements to the Village, as required, for the installation and permanent operation of drains, sewers, mains or access roads where required.

2. These easements shall be prepared prior to the approval of the detailed plan and be so written as to be contingent upon the Village approval of said Plan.

3. Easements across lots or centered on rear or side lot lines shall be provided for utilities where necessary and shall be at least twenty feet (20'), where multiple utilities are present, they shall be thirty feet (30') wide. Easements along common property lines may be split evenly between lots.

4. All utilities shall be underground including electric, telephone and cable television. This regulation shall be enacted in accordance with the NYS Public Service Commission ruling (tariffs) for all public utilities. Utility companies shall obtain the necessary approvals and permits prior to starting construction.

5. The Village reserves the right to require easements for anticipated future utilities where in the opinion of the Planning Board and or Village Engineer such easements are justified.

6. The Planning Board reserves the option to modify or waive these requirements, including easement dimensions, if appropriate.

2.21 STORM DRAINAGE

1. Particular attention should be given to storm drainage facilities. These facilities shall be designed to take the run-off from streets, lawns, paved areas, and roof areas. Full attention by the Engineer shall be given to the interception and conveyance of storm water by the street drainage system, a system of back-lot-line drainage swales, and main drainage channels through the development. In order to facilitate drainage, no street grades shall be less than 0.5%.

2. Storm drains and channels shall be designed and provided to adequately convey the anticipated runoff from the development as well as all future development upstream or uphill from the development in question. However, the minimum size pipe used for storm drains shall be twelve inch (12”) diameter; except that catch basin cross-overs may be eight inch (8”) pipe.

3. The rainfall-intensity curve included herein shall be used for computing anticipated rainfall. The coefficient of runoff to be used is 0.4. Runoff within the development shall be computed by the Rational Formula, using the "10 Year Storm". Design of major channels or piping Systems conveying water through the development shall be designed using the "25 Year Storm," Time of concentration to first inlet shall be taken as not more than fifteen (15) minutes. The design engineer shall give particular attention to time of concentration in hilly areas.

4. Catch basins shall be spaced at intervals of not over four hundred feet (400’), at low points, and at intersections and shall conform with the detailed drawings included herein.

5. Drains shall be designed with straight-line grade and alignment between manholes. Manholes shall be placed at intervals of approximately three hundred feet (300’) maximum, sufficient grade shall be provided to prevent settling of grit insofar as practicable.

6. Manhole tops shall be accurately designed to conform with finished grade.

7. Storm drains shall be constructed as outlined under Part 3 of this manual.

8. Open channels serving as main drainage ways normally will not be accepted by the Village 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 a size of forty eight inch (48") diameter or equivalent. Developers and their engineers bear the responsibility of providing technical design data in this regard which shall be submitted to the Municipality and their engineer, whose approval or disapproval of this data shall be final and binding.

9. Developer’s Engineer shall be responsible for furnishing, as part of their plans to be presented before the Planning Board, full and sufficient details of all hydraulic structures. This includes, but is not limited to, cross sections of drainage channels, details of head wall construction, erosion control structures, special manholes, and all such other items as may be necessary to establish fully the methods and materials to be followed in construction.

10. Developers and their Engineers shall so design the vertical control of their development that surcharge of storm drainage systems will not cause a backup or flooding of cellars. This will normally require that cellar drains not be connected to the storm drainage system unless:

    A The cellar floor is higher than pavement grade in order that the street drain system can run fully surcharged, or

B The cellar drainage discharges through a sump pump and check valve.

11. In the design of storm drainage piping systems an "N" of 0.013 shall be used for smooth pipe and an "N" of 0.025 shall be used for corrugated metal pipe, unless the corrugated metal pipe is of the "Smooth-Flo" type. In this case an 'N" of 0.013 may be used.

12. The Developer's Engineer shall submit for approval his storm sewer design computations and sketches. The computations shall clearly indicate the assumed density of soil, height of cover, trench width, safety factor and type of bedding proposed.

13. All three way manholes to be five foot (5') diameter or greater depending on size of pipe.

14. The invert of a three way manhole will have a minimum radius equal to one-half (1/2) the diameter of the manhole. No “T” intersections will be acceptable.

2.22 STORM WATER DETENTION BASINS

1. The Village has determined it to be desirable to require storm water detention basins in certain areas. There are various reasons for this, not the least of which is that continual upstream development over-taxes downstream natural watercourses as well as man made drainage facilities. Secondly, these increased rates of storm water runoff cause environmental problems downstream such as highly erosive velocities, flooding and over topping of the banks. Consequently it has been determined advisable to insist upon retention basins where appropriate and to have these retention basins designed in a manner compatible with the particular problem.

2. While the Village reserves the right to establish particular parameters in each individual instance, the general philosophy is to permit runoff from any particular development of 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 a natural or agricultural condition.

3. It should be pointed out, however, that the Village reserves the right to establish 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, they may, at their 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.

7. Access for Maintenance: Where storm water facilities are not adjacent to a public right of way, an easement shall be provided for purposes of maintaining the detention basin.

The easement shall be sized and sited such that construction equipment can reach the location.

5. Parameters or rules regarding storm water discharge are simply stated below:

   A. No developed area shall discharge more storm water into adjacent culverts and channels than occurs under a natural undeveloped condition.

   B. The flow capacity of channels and culverts immediately downstream from a development does not necessarily govern the adequacy of the total drainage system downstream.

      1.) As one travels downstream in any given drainage basin, (and therefore from any given development) the area contributing to any drainage channel is increasing.

      2.) Culverts and channels downstream from a development may be able to handle the total runoff from that development alone, but this does not imply that said channels and culverts can handle the total runoff to that location.

   C. The fact that downstream facilities are inadequate prior to development and therefore flood at certain times, does not imply that increasing the frequency at which they will flood by allowing additional runoff from a development is desirable.

6. Engineering Procedures: Based on an analysis of a number of watershed models, the following simplified method for sizing storm water detention facilities is presented, In no way is this method intended to deter the design engineer from performing the rigorous hydrologic and hydraulic analyses previously required if he so desires. Rather, this is intended to simplify the engineering calculations while achieving the same results. Should the design engineer wish to utilize reservoir routing techniques, the SCS Hydrograph Method shall be the Standard. Computations shall be based on 24-hr duration rainfall as supplied by the U.S. Weather Bureau.

   A. Provide volume for two year twenty four hour rainfall at top of riser, as follows:

      1.) Divide Trib area into the following land uses. (Acres)
         a.) Undeveloped tributary land area off-site (after proposed site development).
         b.) Residential tributary off-site + all of proposed site area that is not commercial.
         c.) Tributary off-site commercial + on-site commercial.

      2.) Compute required storage in A.F. by summing b-i, b-2 and b-3 below:
         a.) (a-1) above x 0.0283
         b.) (a-2) above x 0.0525
         c.) (a-3) above x 0.1408

      3.) Required storage for off-site area may be reduced it off-site areas have existing detention ponds by

a.) Volume of oft-site pond (with riser) at top of riser to maximum depth of four feet (4') without reservoir routing)
b.) Volume of off-site pond (without riser) at HW necessary to pass 15 cfs through outlet of said pond, to max depth of four foot (4') without reservoir routing.
c.) The minimum volume required for detention (AF) to serve off-site tributary areas shall be (0.0283) x off-site area (AC)

B. All ponds shall have trickle tube risers, (minimum 36" diameter) designed as follows:
1.) 2' mm height, 4' max height
2.) top of riser to be at least as high as outflow pipe up to max of 4'
3.) 10" inflow pipe, inv - pond bottom
4.) no other opening to UW depth of 2'
5.) 2' - 3', provide 4 orifice openings, as shown in the Appendix
6.) 3' - 4', same as (e) above
7.) Anti -vortex-device
8.) trash rack

C. Outflow pipe to pass Q_{10} existing, unless determined otherwise by the Village. Use the smallest pipe that will pass flow with HW > 1; minimum size to be 12" diameter. D =

D. Emergency spillway crest one foot above HW required to ss Q_{10} existing or a minimum of one foot above crown of outfall pipe, or one foot minimum above top of riser, which ever gives greatest HW from outfall invert to spillway.

E. Emergency spillway to pass Q_{25} developed when flowing one foot deep based on Q =3.67LH.

F. Top of dam 2' above emergency spillway crest.

G. Unusual topographic conditions may warrant changes from the pond geometry and discharge structure configuration as outlined above. Where the design engineer feels that those changes are justified, he should contact the Village Engineer for approval prior to final design.

H. Plan details shall show the pond location, size inlet and outlet structures and adequate safety features, such as fencing, etc.

I. The Developer's Engineer shall submit, with his final plans, drainage calculations justifying the size of pipes, channels, impoundment basins and related structures.

7. Storm Water Ground Recharge: In certain areas where development does not offer positive surface storm water discharge, the Village may allow storm water ground recharge.

A. The Developer shall retain a New York State licensed soils engineer to provide a detailed report and plan indicating the qualitative and quantitative ability of the aquifer to receive ground recharge. The report shall include soil permeability data,

geologic features, gradation and soil sampling data, solid exploration and testing. Adequate test pits and bore holes shall be provided to define the limits of the aquifer where recharge is proposed.

B. The ground recharge facility shall include a retention facility where adequate settling of soils can occur and storage provided. Discharge to the recharge area via a trickle tube or other piping shall be shown. Other design elements including fencing, useful system life, infiltration piping, operation and maintenance costs shall be required.

2.23 HOUSE & LOT STORM DRAINAGE

1. Provisions shall be made for disposing if roof and basement drainage into street drainage storm system. Therefore individual basement floor elevation shall be set such that the gravity flow of water will occur without causing backup or flooding in the basement. In lieu of gravity flow design may provide for and indicate on plans that basement will be drained with sump pump and required check valves.

2. In special conditions, where topographic conditions permit, basement drainage may be conveyed to drainage swales where storm water may be deposited. Storm water swales shall not permit discharge nor cause nuisance to adjoining properties. In such cases the basement floor elevation shall be above the level of the swale to prevent basement flooding.

3. No laundry, sanitary, kitchen waste or driveway drains shall be discharged into the storm drainage system. No floor drains in garages are permitted. Further, no driveway drainage is permitted to enter main drainage swales as soap suds and detergent waste from car washing operations cause pollution and nuisances to adjoining property owners.

4. Storm drain laterals shall have outside cleanout. Refer to Standard Details.

2.24 SANITARY SEWAGE FACILITIES

1. Sanitary sewage facilities shall be designed in accordance with current policies and directives of the Monroe County Health Department and the New York State Department of Environmental Conservation.

2. These facilities shall be subject to approval of the Village during all stages of design and construction.

3. Sanitary sewers shall be used for all developments.

4. Materials shall be as specified in Part 3 of this manual.

5. The Developer's Engineers shall submit for approval, his sanitary sewer design computations and sketches. The computations shall clearly indicate the assumed density of soil, height of cover, trench width, safety factor and type of bedding proposed.

6. In designing sewer profiles consideration shall be given to the relationship of house elevation to sewer elevation to assure the installation of laterals on at least a one percent (1%) grade (1/8 inch per foot) for six inch (6”) diameter laterals and twp percent (2%) grade (1/4” per foot) for four inch (4”) diameter laterals.

7. Maximum manhole spacing shall be three hundred feet (300').

8. The sanitary sewer profile shall be designed so that there is at least 0.3 of a foot drop within the manhole but not greater than two feet (2’). If a drop through manhole is two feet (2’) or greater there shall be an outside drop provided. Refer to Standard Details.

9. All three-way manholes to be five foot (5') diameter or greater depending on pipe size.

10. The invert of a three way manhole shall have a minimum radius equal to one-half (1/2) the diameter of the manhole. No “T” intersections are permitted.

11. Where sanitary sewers are not available septic tanks and leach field shall be permitted. Such facilities shall be designed in accordance with current policies and regulations of NYS Health Department and NYS Department of Environmental Conservation.

    A. The basis of the leach field design shall be from results of percolation tests and soil test pits. These tests shall be conducted in accordance with standards and methods in accordance with NYS Health Department. Percolation test shall b e conducted on each lot proposed for development and be located where the leach field is proposed to be installed. Location of all percolation tests and soil test pits shall be indicated on the subdivision plan.

    B. Concurrent with the submission of the preliminary plan, the Developer shall submit a data sheet stating the results of all percolation tests and soil test pits. This data sheet shall conform with the Monroe County Health Department and contain an affidavit by the NYS licensed engineer stating supervision of said tests and attesting to the state results.

2.25 WATER SUPPLY

1. The Monroe County Water Authority has jurisdiction over all water mains, permits and appurtenances, Concurrent with the submission of the Preliminary Plan, the developer shall submit a data sheet providing sufficient calculations relating to static and residual pressure, date of flow tests, recorded flow, description of existing water mains and a discussion on anticipated fire protection and domestic pressures and volumes within the development.

2. The water lines and appurtenances shall be designed in accordance with the standards set forth by the Monroe County Water Authority.

3. These facilities shall be subject to the approval of the Village Representative during all stages of design and construction.

4. The criterion of design will normally be that pipes shall be sized to obtain the required fire flow at the critical point in the development while satisfying the average daytime domestic draft.

2.26 UTILITIES

1. All utilities shall be underground including electric, telephone and cable television. Utility companies shall obtain the necessary approvals and permits prior to starting construction.

2.27 GENERAL BUILDING DESIGN CRITERIA

1. Intent and Purpose: The Village of Honeoye Falls hereby finds that excessive uniformity, dissimilarity, inappropriateness or poor quality of design in the exterior appearance of buildings erected in any neighborhood adversely affects the desirability of the immediate area and neighboring areas for residential and business purposes or other use.

   It is the purpose of this Section to insure the harmonious, orderly and efficient growth and development of the Village and thus to promote the health, safety, general welfare of the community, to promote the public convenience and prosperity, to conserve the value of buildings and to encourage the most appropriate use of land within the Village

2. Development Standards and Guidelines: This Section is based upon the concept, that neighborhoods be designed as coherent environments arranged in a continuum from rural to urban. Rather than regulation based primarily on uses and dimensions, this type of land use regulation focuses on the creation of a consistently high quality public realm, with interconnecting streets lined with buildings in context with their surroundings. Because the uses are varied, they are harmonized using regulations that address design issues such as building type and placement and facades treatments.

   The intent of the guidelines is to insure buildings that are sited and constructed with a form and appearance that is compatible with their surroundings; that provide appropriate transitions between different parts of the Village as well as between different neighborhoods as well as between the public area of the street and the private area of the building; that have attractive entrances; that buildings shall be landscaped; that adequately buffer nearby uses; that are protective of important open space resources and that minimize and avoid adverse impacts.

3. General Design Elements:

   A. New construction shall generally recreate Honeoye Falls' traditional village fabric with varied but complementary structures that are harmonious with traditional village context. Parking lots shall be located behind new and existing structures and garages shall be placed back of the facades of new or existing buildings to the greatest possible extent.

B. Contemporary approaches and design ideas are encouraged; but shall also respect and reflect the traditional scale, proportions, rhythms, shapes, and directional expression reflecting Honeoye Falls traditional character.

C. New construction shall be encouraged to be an integral part of the Village environment reflecting Honeoye Falls traditional character, embodied in the variety and richness of its building types and the cohesiveness of its' neighborhoods.

D. New buildings should not be designed as free-standing objects, but instead shall generally conform to the existing traditional patterns of growth and maintain Honeoye Falls traditional character.

E. Parking lots shall be located behind new and existing structures.

F. Buildings containing 17,000 square feet or more should include civic space in the development plan.

G. Rear doors, loading docks, and service entries that face street frontages are prohibited.

H. One principal building and one accessory building may be built on each lot. Accessory buildings should be no higher than one story and no wider than 24 feet.

4. Infill structures:

A. Infill structures must blend in with the existing streetscape and reinforce continuity rather than stand out individually.

B. Infill structures shall generally relate closely to the heights of adjacent buildings and continue the street setback parameters established by adjacent buildings.

C. Where infill structures abut a wall or walls with adjoining structures, the design of the new infill façade shall continue the horizontal architectural elements such as trim bands, cornices, copings, etc. found on adjoining buildings.

D. Infill structures shall generally not introduce new roof shapes and pitches not found on buildings located on the same block; and will generally maintain the relationship of street facing gables to side facing gables that exist on the block.

E. Infill structures shall maintain the relationship of window area to wall area and the width-to-height ration of windows and doors in the facades of surrounding traditional Village buildings. Introducing incompatible façade patterns or proportions that upset the rhythm of openings of surrounding structures in the immediate area shall be discouraged.

F. The Planning Board may modify the specified requirements in any individual development proposal where, in the Board's judgment, such modification is in the public interest or will avoid the imposition of unnecessary individual hardship.

5. Standards to Guide the Planning Board: The Planning Board shall be guided by the following standards in approving or disapproving applications to the Planning Board. In applying the principles for review, the Planning Board shall consider whether the proposed alteration or construction is compatible with the structures on the property and or the surrounding properties with regard to the following:

   A. Height: The height of a building shall be compatible with the surrounding buildings.

      1.) Generally, maximum building height shall not be greater than the taller of the next two (2) abutting structures on each side of the building site, provided such structures are in conformance with bulk regulations of the Zoning District.

      2.) Generally, minimum building height of a street facade shall not be less than the lower of the next two (2) abutting structures on each side of the building site, provided such structures are in conformance with bulk regulations of the Zoning District.

      3.) In case of inconsistencies, new construction should be compatible with, but not excessively similar to the houses on either side.

   B. Scale: The relationship of a building and its elements to human size, form, and perception. Scale deals with the relationship of each building to the other. A new building shall be compatible with the surrounding buildings. The scale and proportion of building facades, design and materials used in new construction should complement that used in existing buildings and characterizing the neighborhood in which the building is located.

   C. Proportion: The relationship among the dimensions of various building & facade elements and relationship of the height to the width of the building.

      1.) Front Facade: The relationship of the width of a building to the height of the front elevation shall be compatible with the surrounding buildings. The facade of structures erected on single house lots should be proportioned so that the height equals at least one and one-half (1-1/2) times the width. Main building entrances should face the street and should be easily identifiable and scaled to the size of the street they front.

      2.) New facades should include base, middle and top levels and coordinate the relative height of these facade elements (“datum lines”) with those of adjacent and nearby buildings.

      3.) Openings: The relationship of the width of windows and doors to their height shall be compatible with the surrounding buildings. All architectural openings, including windows, doorways, arches and porch framing, should be constructed with their height equal to or greater than their width and framed by appropriately scaled lintel or arch at the top and sill at the bottom. Additionally flat trim surrounding window openings shall be a minimum nominal four inch

(4") in width. When new construction is an addition, trim shall match that of the existing building.

D. Rhythm: The pattern resulting from repeated elements such as window and door openings, columns, arches, and other facade elements.

1.) The rhythmic relationship between a building's facade elements shall be compatible with the surrounding buildings. In cases where new construction occupies more than one house lot, the rhythm of the separate building units existing on the street shall be carried across the facade. Some of the ways this may be achieved include the grouping of openings in clusters, the employment of reveals in wall planes, or the use of structural bays.

2.) Rhythm of openings refers to the number and spacing of windows and doors in a façade. Typical Colonial, Georgian, Federal and Greek Revival style buildings have a symmetrical facade with equally spaced openings per floor. Additions to an existing building should maintain the original rhythm of openings. If a renovation to an existing building is planned the rhythm should not be changed by the removal or addition of openings.

3.) Original windows should be retained whenever possible. When new windows are proposed to replace existing window units compatible replacements must be utilized. Any new windows shall duplicate existing windows in location, size, shape and number of panes. It is especially important to match existing windows when only a few windows in a façade are being replaced. The use of matching windows applies to additions and restorations.

4.) The rhythm and proportions of architectural openings should complement that of adjacent buildings, and concentrate windows and openings at the street level. Facade design should incorporate a primary material and an easily recognizable pattern (with sub-patterns or subtle variations for larger scale buildings). Breaks or fluctuations in pattern or materials may be used to draw attention to entrances or special facade elements.

E. General Massing: Massing deals with the volume created by sections of a building. For example, a simple Colonial style house may be a single mass but a Victorian style house with turrets, wings, cross gables has varied mass. The relationship of a building to open space between it and adjoining buildings shall be compatible with the character of the surrounding area.

1.) Directional Expression: The directional expression of a building shall be compatible with the dominant horizontal or vertical expression of the surrounding buildings.

G. Roof Shapes: Roof forms may include a symmetrical pitched roof or a flat roof with a cornice. Slopes of pitched roofs should be not less than 5:12, except that porch roofs may pitches not less than 3:12.

There are several different roof styles that include: gable, gambrel, hip, mansard, shed and flat. The style and degree of incline (pitch) contribute to the overall roof shape.

H. Building Materials:

1.) Materials used in new construction shall be compatible with those additionally used in the surrounding area. Contemporary materials such as glass, curtain walls, concrete, etc., are acceptable, provided that the overall texture, color and detail of the building are compatible with the surrounding buildings.

2.) In the case of existing historic buildings, architectural features shall be restored with colors and finishes appropriate to the nature of the materials and to the historic character of the building. Where documented colors are not used, historic colors appropriate to the building's predominant style(s) shall be encouraged.

3.) Recommended facade materials include common red brick (bare or painted), special masonry units (textured, colored, or painted), natural stone, or wood clapboard. Bare masonry units; metal, asphalt or vinyl siding should be avoided.

4.) Recommended window materials include anodized aluminum, vinyl clad frame, painted or stained wood. Recommended lintel and sill materials include brick, stone, wood or colored concrete. Bare aluminum frames should be avoided. Tinted or mirrored glass should be avoided. Sliding doors and windows should be discouraged along primary facades, except to access porches serving residential on the second or higher story.

5.) Recommended roof materials include asphalt shingles, standing seam metal roof, or natural slate. Wood shingles should be avoided.

6.) Awnings incorporating a maximum of three approved colors may be used. Plastic awnings should be avoided.

7.) Building signage should be simple and integrated into the design of the building.

8.) Building materials and colors should be historically appropriate on buildings with historic significance or within Historic District.

I. Lot Placement:

1.) Setback: The front yard setback for the building line of all new construction shall be no closer to the street than the closest, or no further from the street than the farthest, of the next two (2) abutting structures on each side of the building

site, provided such structures are in conformance with area regulations of the Zoning District.

J. Garage Orientation: Overhead garage door(s) should be located on alleys or should face the side or the rear, not the front. Where this is not feasible, because of property dimension constraints, such doors should be positioned no closer to streets, than twenty feet (25') behind the plane of the principal building facade. When garages are approved to face the front, the garage shall not exceed two car capacity in width and any garage doors shall not exceed ten feet (10') in width. Detached garages and carriage houses are appropriate in Village residential lots.

K. Additions: Additions to existing buildings should be located in such a manner so as to preserve the front facade of the existing building. Additions should not eliminate original stories particularly where exposed to public view. Additions should be designed to be compatible with the original structure.

Additions do not have to be replicas of the existing building. Additions of a different style than the existing that are compatible in scale, materials, or roof shapes could be appropriate. Utilizing the advice of an architect may ensure a compatible design.

2.28 REQUIRED MAINTENANCE & REPAIR

1. Nothing in this chapter shall be construed to prevent the ordinary maintenance and repair of any exterior architectural feature of a landmark which does not involve a change of design or outward appearance.

2. No owner or person with an interest in real property designated as a landmark shall permit the property to all fall into a serious state of disrepair so as to result in the deterioration of any exterior architectural feature which would in the judgment of the Planning Board, produce a detrimental effect upon the life and character of the property itself. Examples of deterioration include:

   A. Deterioration of exterior walls or other vertical supports.

   B. Deterioration of roofs or other horizontal members.

   C. Deterioration of exterior chimneys.

   D. Deterioration or crumbling of exterior stucco or mortar.

   E. Ineffective waterproofing of exterior walls, roofs or foundations, including broken windows or door.

   F. Deterioration of ay feature so as to create a hazardous condition which could lead to the claim that demolition is necessary for the public safety.

2.29 DEMOLITION

1. Purpose: The quality and feel of the Village of Honeoye Falls is shaped by the attributes, historical character, neighborhood character and scale of existing residential and non-residential neighborhoods and areas. The preservation, adaptive re-use, enhancement and continued use of structures with historic, architectural, cultural and/or aesthetic importance are essential in retaining this community's character.

   The Village of Honeoye Falls Planning Board, after considering citizen and professional input as necessary, shall decide whether a structure may be removed from the neighborhood fabric of Honeoye Falls. Demolition activity itself shall be designed to minimize disturbances and hazards to the surrounding neighborhood and community.

2. Definitions:

   A. Substantial Demolition: a building is considered to be substantially demolished when demolition equals or exceeds fifty (50%) percent of the affected building's existing coverage (the ground area covered by any roofed part of the building, including cantilevers and roof eaves). Substantial demolition shall be cumulative and apply to all projects proposed for a building and/or property that when combined, meet or exceed the fifty (50%) percent limit within a two (2) year period.

   B. Barn: A building consisting of 400 square feet or greater in area.

   C. Accessory Structure: A building consisting of less than 400 square feet in area.

   D. Principle Structure: Largest building in floor area located on property.

   E. Dwelling: 1 & 2 family residence, apartment building, townhouse and condominium.

3. Application:

   A. Demolition Approval by the Planning Board and issuance of a permit for demolition by the Code Enforcement Officer shall be required prior to substantial demolition for the following structures: principle building, dwelling, barn or carriage house. The exception is accessory structures which shall not be required to conform to the requirements of this chapter. However a permit for demolition may be required by the Building Inspector.

   B. In cases where an applicant has filed an application for Demolition Approval on the basis of the structure being unsafe, the Planning Board shall make a determination that the structure can or cannot reasonably be repaired in such a way as to remove the unsafe condition. The Planning Board may require the applicant to use a qualified consultant to provide a building condition report to assist in this determination.

C. In the case of a structure having significant architectural or historical meaning, the applicant shall be required to show good cause as to why such structure cannot be preserved. All applications for demolition shall be required to show why structures cannot be preserved. The Planning Board may require the applicant to use a qualified consultant to provide a building condition report.

D. The Planning Board shall have no authority to act in cases where an appropriate legal action or procedure has resulted in a judgment order by a court of competent jurisdiction which determined that a structure endangers the health, safety and welfare of the public and shall be demolished.

E. Upon consideration of the application submitted and testimony presented, the Planning Board shall approve, conditionally approve, or deny any application presented for Demolition Approval. The Planning Board may place conditions of approval on the demolition and redevelopment of the site necessary to meet the purpose and intent of this chapter.

4. Submittal requirements:

A. Every application for Demolition Approval shall include information necessary to allow the Planning Board and/or other Village Review Board to review the building replacing the demolished structure. This information may include, but is not limited to the following: building elevations, cross sections, floor plans, site plans, grading plans and landscaping plans. All drawings shall indicate both existing and proposed elevations and clearly identify and label all materials as new or existing. Complete photos of the existing structure's exterior shall be provided. Additional information may be required by the Planning Board as deemed necessary to determine conformity with Village regulations and with the spirit and intent of this chapter.

B. Any and all zoning variances required for the proposed building shall be specified.

C. Application for demolition of a structure shall include plans for development of the site following demolition. Such plans shall include an acceptable timetable and guarantees, which may include performance bonds or letters of credit for demolition and completion of the project. The time between demolition and commencement of new construction generally should not exceed six (6) months.

D. A landscape plan for the property shall be submitted. Such plan shall include a cost estimate of landscaping the site. Estimate shall include maintenance until the site is fully restored to insure that the landscaping survives in a healthy condition.

E. An independent evaluation and report by a qualified consultant specializing in historic preservation, historical resources, building condition evaluation or a similar field may be required by the Planning Board. Review Fees of qualified consultant shall be the responsibility of the applicant.

F. Relocating structures of architectural or historical significance are encouraged as an alternative to demolition.

5. Public Hearing: Upon receipt of a complete application for Demolition Approval and required review fee the Planning Board shall review the application at the public hearing according to the normal schedule, rules, policies and public notification procedures of the Planning Board.

6. Standards for Review: The Planning Board, may approve, conditionally approve or disapprove any application upon review of the submitted application taking into consideration the objectives listed below:

   A. The project is consistent with the Village of Honeoye Falls Comprehensive Plan.

   B. The project meets all zoning requirements or a variance has been granted by the Zoning Board of Appeals.

   C. A landscaping plan has been approved by the Planning and Conservation Boards.

   D. The project will comply with the requirements of NYSDOL Code Rule 56 regarding asbestos control.

   E. The project will not be detrimental to the health, safety or general welfare of persons residing or working in the neighborhood and will not be detrimental to the public welfare or injurious to property or improvements in the neighborhood.

   F. The project does not have a significant negative impact on affordable housing within the Village.

   G. The Planning Board may require that a Letter of Credit or certified check, in an amount as determined by the Board to be sufficient to ensure the restoration of the property following demolition and/or redevelopment, is submitted and accepted by the Village prior to the issuance of a permit for demolition.

   H. The Planning Board shall deny any project for which it cannot make the findings required in this section

7. Commencement: Failure to commence permitted construction or restoration of the property in accordance with the submitted timetable following demolition shall be cause for the Village, upon written notice to the property owner, to proceed with the restoration of the property using the Letter of Credit. The property shall be completed in accordance with the approved landscape plan.

8. Noncompliance: Failure to comply in any respect with the conditions of approval or with approved plans will constitute grounds for the Village to immediately stop work related to the noncompliance until the matter is resolved as approved by the Village Representative.

9. Emergency Situations: An emergency permit for demolition may be issued by the Code Enforcement Officer or designee prior to Demolition Review approval only when a structure is determined to be unsafe pursuant to Chapter 75, Unsafe Buildings, of the Code of the Village of Honeoye Falls. The Code Enforcement Officer or designee may condition such emergency demolition to provide compliance with this chapter.

10. Transferability: A permit for demolition that is subject to Demolition Approval may not be transferred from the party to whom it has been issued.

11. Expiration: Failure to secure a permit for demolition and/or failure to cause demolition to commence within one (1) year from the date of Demolition Approval will cause Demolition Approval and any permit for demolition issued to expire without further notice.

2.30 MODIFICATION OF GUIDELINES

1. The Planning Board may modify the guidelines herein upon written finding that such a modification is warranted. Circumstances that shall warrant modification of the guidelines may include, but not be limited to: physical constraints such as the location of existing buildings or changes in grade between adjacent properties; excessive cost; or failure to obtain an agreement or permit that is required for the implementation of the guidelines. In reviewing any proposed modification, the Planning Board shall consider whether granting the modification will be consistent with the purposes of this ordinance, locally adopted plans, and the following principles:

   A. The general design and character of the proposal is in harmony with the neighboring properties in the district.

   B. The scale of the proposal in relation to the site and the neighboring properties.

   C. The similarity of building materials and their color and texture in relation to those found in the surrounding district

   D. The visual compatibility of the proposal with surrounding properties including height, setbacks, roof shape, window and door arrangements and the orientation of the building in relation to the street.

PART 3 - CONSTRUCTION

3.1 GENERAL

1. Purpose: To assure that utilities, which are to be turned over to the Village for maintenance, shall be so constructed as to cause a minimum of maintenance and a maximum of benefit to the village. Therefore, they shall be strictly adhered to. Failure of the developer, his agents, employees, or subcontractors to comply shall be considered sufficient cause by the Village to not accept the streets or any portion thereof for dedication until all work is satisfactory.

2. Workmanship: All work shall conform to the approved plans, permits and information contained in this book. All changes to the work must be approved in writing in advance. The Village shall determine whether the work is satisfactory. Unsatisfactory work shall be corrected at once.

3. Responsibility of the Work: The developer is solely responsible to the Village for proper construction of utilities. It is normally of benefit to the Developer and the Village to have Village Representatives deal directly with the Developer's Contractors where such are employed, both as a matter of expediency and to avoid duplicative liaison. However, such action shall not be construed as relieving the developer of his prime responsibility to the Village.

4. Materials: All materials incorporated in the work shall be new and of the best grade of their respective kinds for the purpose required. When requested, the Contractor shall supply material samples for laboratory testing. The Contractor shall supply shop drawings and or manufacturer's certificates for all materials to be used. Shop drawings shall be approved prior to materials being ordered or delivered.

5. Material Handling & Storage: Contractor shall store equipment and materials at the job site in accordance with the instructions of the Village Representative. Materials stored within the Public Right Of way shall be placed so as not to cause any obstruction to traffic and to the general public and shall be properly identified by adequate and required safety barricades. No storage of materials or equipment shall be within 15 feet of fire hydrants. Gutters and drainage inlets shall be free from obstruction at all times. Material and equipment storage shall not encroach on private property without written consent of such private property owner. Materials shall be stored neatly and be protected against deterioration. Materials which are rejected shall be immediately removed from the site.

6. Observation of Work: All construction shall at all times be subject to inspection by the Village their agents, representatives, and authorized employees. Such inspectors may stop the work when the developer or his contractor has no competent foreman in charge of the work, or when the work or materials does not meet these specifications, or when circumstances are such that continuance of that particular phase of the work would not be in the best interests of the Village. If any work shall be covered up without approval or consent that was required to be inspected shall be made visible to the Village Representative for examination and restored at contractor's expense.

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

7. Contractor's Personnel: Contractor shall place a superintendent in charge of the work who shall have the authority to act on behalf of the Contractor. This superintendent shall be present at all times work is underway on the site. Superintendent shall be available to receive and comprehend directions and questions from the Village Representative. An emergency phone number to contact the superintendent after normal working hours shall be provided to the Village. All workmen under the contractor's employ shall have sufficient skill and experience to properly perform all work assigned. Any person who does no exhibit proper qualifications may be deemed as incompetent by the Village to perform the work and shall be discharged from the site at once and not again be employed on the project again.

8. Materials and Methods: Except as otherwise specified, all materials and construction methods shall be in accordance with the New York State Department of Transportation Standard Specifications Manual of Construction and Materials latest edition. Manuals may be purchased from NYSDOT, 1530 Jefferson Road, Rochester, NY 14623.

9. Substitutions: Whenever a particular brand or make of material, equipment or other item is specified or indicated on the drawings, another brand or make may be offered as a substitute, except where specifically stated otherwise. The Contractor shall submit to the design professional for each proposed substitution complete descriptive literature and performance data together with material samples where feasible. Upon review by design professional, a recommendation shall be forwarded to the Village. In all cases the Village shall be the sole judge as to whether a proposed product is equivalent to that specified. It shall be the Contractor's burden to prove, at own expense, to satisfaction of Village. The Contractor shall abide by the Village's decision when proposed substitution is judged unacceptable and shall furnish in such an instance the original item specified. No substituted items shall be used without written approval from the Village.

10. Protections: The Contractor shall provide and maintain all adequate and necessary barricades, signs, lights, trench sheeting, bracing and all other measures that are required for the protection and safety of workers and general public. The Contractor shall comply with all current rules and regulations of New York State Department of Labor and Occupational Safety and Health Act. Compliance with these requirements is the sole responsibility of the Contractor doing the work and in no manner shall be construed as that of the Village.

11. Incomplete Work Protection: When 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 shall be so protected that surface water, mud, silt and other debris cannot enter. Sewer laterals, water services and valves shall be suitable marked with stakes and protected as described above.

12. Protection & Restoration of Property: The Contractor shall be responsible for the preservation of all public and private property, crops, trees, survey monuments, highway signs and markers, fences, etc. along and adjacent to the work site and shall use every precaution necessary to prevent damage or injury thereto. The Contractor shall also use suitable precautions to prevent damage to pipes, conduits and other underground structures, whether shown on the plans or not. The Contractor shall not willfully nor maliciously injury or destroy trees or shrubs and shall not remove or cut them without prior written approval from the Village. When or where any direct or indirect damage or injury is caused to public or private property by or on account of any act, omission, neglect or misconduct in the execution of the work or as a consequence of the non execution of the work then the Contractor shall restore, at Contractor's expense, such property to a condition equal to or better than existed prior to when such damage was done.

13. Site Layout: All proposed construction work shall be properly staked out by a licensed land surveyor in accordance with the approved plans. Stake out shall be of sufficient detail to ensure correct elevations of structures, proper crowns, slopes and alignments. When pavement base courses or sub grades are left unfinished during winter, they shall be re-staked before work commences and re-graded as required.

14. Stake Out: All construction work shall be properly staked out by competent engineering personnel in accordance with the approved plan. Stake out shall insure correct elevations of tops of structures, proper crowns, slopes and alignments.

15. Underground Utilities: The developer, or his Contractor where work and responsibility has been so delegated, shall locate all existing public and privately owned utilities such as but not limited to the following: sanitary sewers, water mains, storm drains, gas lines, electrical conduits, telephone lines and 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. The Contractor shall conduct the work to prevent disruption of all existing services and damage to all existing utilities. Any damage resulting from Contractor's work shall be repaired immediately at Contractor's own expense in a manner approved by the Village and subject to the authorities having jurisdiction. No work shall commence prior to receiving stakeouts of all utilities by the appropriate agencies. Where excavations by the Contractor require any utility lines or appurtenant structures to be temporarily supported or otherwise protected during the construction work, such support shall be performed in a manner satisfactory to the Village and in accordance with any authority having jurisdiction.

16. Performance Bonds: A Performance Bond in an amount equal to one hundred percent (100%) of the total construction value shall be furnished to the Village of Honeoye Falls, named as beneficiary, by the developer or property owner, and shall be kept in effect until such time as the project is accepted for dedication by the Village. The form, amount and sufficiency of surety shall be approved by the Village Attorney prior to the issuance of any permits. Surety for the Performance Bond shall be an irrevocable Letter of Credit furnished by the developer or property owner equal to ten percent (10%) of the total construction value plus associated administrative and engineering fees. The Letter of Credit shall provide for an automatic option of renewal, which will be sent to the Village Attorney no less than 60 days prior to its expiration date.

17. Warranty of Work and Materials: The Contractor shall warrant all work performed and materials furnished against defect, failure, inadequacy, or breakage for a period of two years from the date of final acceptance of the work by the Village. A two (2) year Maintenance Bond in accordance with Section 1.7 Maintenance Bond of this book is required by the Village of Honeoye Falls. In the event of such defect, failure, inadequacy, or breakage during said warranty period, the Contractor shall make the necessary repairs or replacements within ten (10) days of the mailing of written notice by the Village or their Engineer. Should the Contractor fail, neglect, or refuse to so comply within the specified time, the Village shall make the necessary correction, repairs or replacements and charge the cost of said work to the Contractor or the Contractor's bonding company.

18. Full Completion of Work and Clean-up: Prior to acceptance of the utilities by the Village, the Contractor shall fully complete the work and leave the site in a neat and orderly condition. 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. Grading between adjacent lots and between lot and the street shall have continuity without abrupt changes in elevation or unfinished ground surface. All areas shall be so graded that run-off from lots of higher elevation does not create a nuisance on lower elevation lots. Valves boxes, manhole covers and curb shut-off boxes shall be left at a proper elevation.

19. Insurance: Refer to Part 1.13 of this book for insurance information.

20. Final Drawings: Prior to acceptance of the utilities by the Village, the developer shall submit as-built plans depicting all elements in their as built location and condition. This plan shall be drawn to scale and indicate by dimensions, angles and distances the location of sewers, and drain Y branches, laterals, manholes, catch basins, hydrants, valves, curb shutoffs and street monuments.

3.2 ROAD & STREET CONSTRUCTION

1. Materials - General Requirements: 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 NYS DOT specifications, as determined by the Village Engineer and Village Representative.

2. Basis of Construction: In order to assure the structural integrity of the sub-grade and "crusher run" stone foundation course the following general rules shall apply:

   A. Under ground utilities shall be constructed outside the pavement area.

   B. Where crossover trenches are required for utility services the trenches shall be backfilled with the acceptable select granular material approved by the Village Representative or suitable natural soil compacted in six inch (6") layers with vibrating tamping equipment.

   C. Contractor note that this includes cross-overs for gas utilities as well as other services it is the Contractor's responsibility to assure that gravel is placed in these trenches.

   D. After properly shaping and obtaining approval of the sub grade, the crusher run foundation course may be placed. The entire foundation course - out to out - must be vibra-tamped.

   E. Crusher run foundation courses for permanent roads must not be used for access roads in wet weather, or at such times when the sub-grade could become “pumped” into foundation course.

   F. All dedicated road shall set over the winter months prior to the final application of topping, material. The top material shall be installed in the spring of the following year.

   G. Where pavements must be placed in an embankment condition the entire height of embankment must be constructed with the use of standard and appropriate compaction equipment. This equipment shall consist of sheepsfoot rollers, vibratory roller or similar equipment. Entire embankment area shall be compacted to ninety five percent (95%) modified AASHO density. If required by the Village Representative, the Contractor shall provide results of certified compaction tests undertaken by a competent soils testing laboratory.

3. Roadway Excavation: Material from clearing and grubbing and the removal of sod and topsoil shall be stored for later use, or placed in the embankment beyond the pavement limits as directed by the Village Representative. All stumps, brush, trees, and other rubbish shall be legally disposed of at an offsite location.

4. Preparing Road Sub Grade

A. The Contractor shall excavate for the base, pavement and gutters to the designed sub grade elevation and six inch (6") wider on each side than the specified pavement and gutter width as shown on the Standard Road Section and as indicated in the following specifications.

B. The sub grade shall be excavated or "boxed" following the depth and alignment of the stakes established by the Project Engineer for this purpose. These stakes shall be at intervals of not more than fifty feet (50') and at twenty five feet (25') in flat areas on grades of less than 0.8%.

C. After being excavated to the proper depth the sub grade shall be graded and crowned one quarter (1/4") of an inch to each foot of width on each side of centerline, allowing for extra 3' x 8" wedge excavation as shown on Road Section, and rolled thoroughly with a 10-ton 3-wheeled roller or vibratory roller. Any unsuitable material found below sub grade shall be removed and replaced with R.O.B. gravel. If the fine grade becomes rutted, it shall be regraded and rolled before the base is put in.

D. No base shall be put in over unstable trenches or soft spots. If this condition should arise, the soil should be removed and filled with approved gravel. The Contractor is responsible for any settling in finished pavement.

E. Cross-over areas and road cuts shall be backfilled with suitable natural soil or R.O.B. gravel meeting the approval of the Village Representative.

F. Any and all utilities that are to be within the subgrade area shall be installed and properly backfilled prior to preparing the sub grade foundation. General site grading shall also be completed before starting sub grade work. Any equipment not required for sub grade work shall not be permitted on the sub grade after it is shaped to line and grade.

5. Preparing Road Base

A. The Contractor shall furnish and put in place a twelve inch (12") base of #2 crusher run dolomite limestone in three (3) courses consisting of three inch (3") lifts as shown on the "Standard Road Section" and as further described in the following specifications.

B. Material: The material shall conform to a "No. 2 Crusher Run" dolomite limestone.

C. Method: The base shall be placed on a graded, crowned and compacted sub grade, free of ruts and disturbed earth as follows:

1). After proper rolling and grading of the sub grade the wedge is to be filled with No. 1 and No. 2 crushed stone.

2.) The first lift of six inches (6") shall be placed and graded, maintaining the specified crown of one-quarter inch (l/4”) per foot and rolled thoroughly with a vibratory compactor capable of producing a minimum dynamic vibration force of 27,000 lbs.

3.) Each course shall be spread with an approved mechanical spreader in such quantity that after being compacted the thickness of each course shall be as specified.

4). The last lift of six inches (6") shall be placed in two 3" lifts and graded to conform to the lines and grades as shown on the "Standard Road Section" All depressions and/or boney areas shall be brought to grade and/or choked with #00's and #1's crushed dolomite limestone. The material shall then be rolled thoroughly from the gutter to the centerline.

5.) The rolling of each course shall be longitudinal to the centerline starting at the low edges and continued to the crown or outside edge of banked curves. After final grading and rolling of the top course, the surface shall be tested with a sixteen foot (16’) straightedge. Any depression greater than one quarter (1/4”) inch shall be satisfactorily eliminated. After completion of the rolling, no hauling other than necessary to bring material for the next course shall be allowed over the approved sub base. No surplus filler material will be allowed on the sub base courses. The first course shall not be laid in excess of five hundred (500’) linear feet without being rolled and filled so as to render each course stable and prevent softening or pumping of the sub grade.

6.) If the sub grade material should become churned up or mixed with the crushed stone sub base material, or otherwise contaminated for any reason, the contractor shall remove the contaminated sub base material and replace with clean crushed stone material.

6. Concrete Gutters

A. The Contractor shall furnish and place concrete gutters as shown on the plans and in accordance with the Standard Road Section and in accordance with NYSDOT specifications for supplying and placement of concrete and as stated herein.

B. The contractor shall submit to the Village for approval a design mix from the concrete supplier. Concrete shall be proportioned and mixed for a 28-day compressive strength of 4,000 psi. The contractor shall be responsible for concrete testing.

C. The gutter shall be constructed on a crushed stone base. The gutter shall be formed by using steel forms unless other methods are approved by the Village. The gutter may also be installed by use of an approved gutter machine (such as a Domtar Gutter Machine) using the proper screed to form the invert shown on Standard Road Section, and equipped with a vibrator attachment.

D. The forms shall be set true to line and grade and shall extend for the full depth of the concrete. All forms shall be straight, free from warp and of sufficient strength to resist the pressure of the concrete without springing. Bracing and staking of forms shall be such that the forms remain in both horizontal and vertical alignment until their removal. At least two hundred (200') linear feet of forms shall be set and approved before concrete placement. Before placing concrete the forms shall be oiled and the sub grade moistened.

E. The exposed surface of the gutter shall be a broomed finish completed with a fine-bristled broom and edged with a proper metal edging tool. This brooming is to fill small voids thus making it unnecessary to do an excessive amount of floating and troweling which brings too much water to the surface causing spalling of the finished concrete in the future. The completed gutters shall be uniform in appearance, free from honey comb, cracks or surface irregularities that restrict the flow of water. Where gutter is unsatisfactory, as determined by Village Representative, whole sections shall be removed and replaced. Surface patching of the gutter is not permitted.

F. The forms shall not be removed until the concrete is sufficiently "set" to prevent chipping of the edges. The gutter shall be backfilled as soon as possible to prevent undermining of the gutter in case of precipitation. The gutters shall be protected from traffic for a sufficient length of time to avoid damage to them.

G. Gutters shall be sprayed the same day with an approved gutter curing agent. The spray shall be applied to the gutter per the manufacturer's recommendations.

H. The joints between gutter sections shall be formed by 1/8" full depth steel spacer plates set at uniform intervals not to exceed ten (10') feet. Full depth expansion joints consisting of ½" pre-molded bituminous impregnated felt joint material shall be installed at thirty foot (30') intervals and also at each side of the gutter inlet aprons and around all appurtenances and or fixed structures extending into the gutter. All gutter joints shall be filled with asphalt sealer in accordance with NYSDOT specifications.

I. Cold Weather Concreting: Concrete gutter shall not be installed while there is frost in the ground. Gutters installed in the cold weather shall be suitably covered by straw, hay or other means to prevent freezing.

J. Wet weather Concreting: Concrete gutters shall not be installed where there is water lying between the forms or where the base is soft from rain. Gutters installed unavoidably during a rain storm shall be covered by a waterproof material immediately.

7. Concrete Curb: Concrete curb 20 inches deep x 8 inches wide (20" x 8") shall be installed where directed by the Village Representative. As indicated, it shall be installed as follows:

A. Materials:

1.) Concrete shall conform to NYSDOT Standard Specifications Construction and Materials". Concrete Class A; Cement cy; 606 water/Cement; 46 Air Content 6%; Slump 3 l/2" – 2 1/2"

2.) Forms: Steel, unless otherwise permitted by the Village Representative.

3. Expansion Joint Filler: Conforming to ASTM D-994, asphalt, fiber and mineral fillers or approved equal.

B. Sub grade preparation: Curb shall be constructed on minimum six inch (6”) crushed stone sub base. Sub grade shall be thoroughly compacted by tamping and kept smooth and free from foreign material until concrete is placed.

C. Forms: Set true to line and grade and held rigidly in position throughout construction. Forms shall have sufficient strength when staked to resist pressure of concrete without springing. Where possible, two hundred feet (200') of forms shall be in place before connecting is commenced.

Joints between sections shall be formed by one eight inch (1/8") thick full depth steel plate dividers. Full depth expansion joints consisting of half inch (1/2") pre-molded bituminous impregnated felt joint material shall be provided every fifty feet (50') of curb. Curb shall be formed with a dropped section across driveway.

D. Placement: After forms are set, check for grade and alignment. Sub-base shall be tested with screed. Before placing concrete steel forms shall be oiled and sub grade cleaned of any waste or loose material which has accumulated. Dry sub-base shall be moistened. Concrete shall be continuously placed in each section and promptly struck and finished.

Forms shall be filled to a point where top of concrete is above top of form. Top shall be struck off with screed or strike board, and surface floated with wooden float until concrete is thoroughly compacted and free from surface depressions and irregularities.

E. Finishing: Forms shall be removed as soon as concrete has hardened sufficiently so that there will be no injury to curb. Immediately upon removal of forms, face and top of curb shall be rubbed down to a smooth uniform finish. No plastering will be allowed. Only wet brick or wood block shall be used. Joint separators shall be lightly tapped until loosened and then withdrawn half inch (1/2"). Edges of curb at joint shall be touched up with pointing trowel to break sharpness after which separator shall be removed. Care shall be taken not to break sidewalls of curb. Curb joints shall be left open without any filler. Expansion joint material shall be cut away so that it does not protrude beyond face of curb.

F. Curing: Curing shall conform to "NYSDOT Standard Specifications Construction and Materials".

G. Curb: Completed curb shall be uniform in appearance, free from honeycomb, checks, cracks, or surface irregularities. Top of curb shall be true to grade, and the exposed face to line.

H. Protection: Protect completed curb until entire contract is completed. Any curb damaged from any cause before final acceptance of contract shall be replaced at Contractor's expense.

I. Measurement and Payment: Measurement shall be made in such a manner or stipulated by the Village Representative as to determine the truest amount of completed concrete curb. In all cases, the Village Representative determination shall be final.

Payment shall be made at the unit price bid per lineal toot of concrete curb constructed. The unit price bid shall include the cost of all labor, material, and equipment necessary to complete all work as outlined herein.

8. 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 "Standard Road Section" and as further described in the following specifications.

B. Material: The material shall conform to the NYSDOT Specifications and all subsequent printings and addenda. Upon request the Contractor shall furnish the Engineer in writing the source of the material and provide a written description of the material to be used including size and percentage of the aggregate and asphalt. The Village Engineer reserves the right to modify the percentages of the aggregates to be used.

C. Method: Before starting the laying of the asphalt pavement, the 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 binder course and a top course in accordance with the street type specifications. The pavement shall be laid by an approved self-propelled, crawler mounted, asphalt spreader manned by competent operators.

E. Each course will be compacted by rolling with an 8-10 ton tandem roller at the appropriate time by a competent operator. The top course shall not be applied until the binder course is sufficiently set. The surface shall be rolled when the asphalt mixture is in proper condition and when rolling does not cause undo displacement, cracking or shoving. The wheels of the roller shall be kept properly moistened with water or a mixture of water and detergent. Solvents harmful to the asphalt are prohibited.

F. All raking shall be done by skilled workers 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. The surface of the pavement shall be thoroughly cleaned of all mud and debris and tack coated prior to placement of true and level top course. At no time will "cold patch" or winter mix be used for any purpose.

H. No asphalt shall be placed before April 20 or after October 31. No asphalt shall be placed on wet surfaces or when the outside air temperature is below 50 degrees. In any event the Village shall make the final decision regarding asphalt placement at any given time. Asphalt placed without Village approval shall be rejected.

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 a maximum on quarter inch (1/4") above the concrete gutters but at no time shall it be below.

K. All paving equipment shall be in good mechanical condition. Paving and rolling equipment shall be in proper working order and shall be free of defective, missing or improperly worn parts. Any equipment found defective either before or during its use shall be immediately repaired or replaced. Any equipment contaminated with mud or other foreign material shall be properly cleaned prior to its use. Asphalt placed with improperly functioning or contaminated equipment shall be rejected.

9. Maintenance of Roadway: The Contractor shall be responsible for maintaining & protecting the roadway and temporary cul-de-sac and/or turn around during the warranty period. If subsequent subdivision sections are built utilizing the roadway for access and/or haul road during construction, the developer shall be responsible for special maintenance provisions. These provisions could be placing or replacing topping, periodic cleaning and flushing of the road surface and repair of any structural damage. The Contractor shall submit a schedule of his proposed “Road Maintenance Program” to the Village indicating how the roadway will be maintained, a timetable for the proposed maintenance and an estimate of cost. This schedule shall be reviewed and approved by the Village and shall become part of the project work. The approved estimated amount for maintenance shall be included in the Letter of Credit. New dedicated roadways will not be allowed for use as haul roads.

10. Temporary Cul-de-sac or Turn-Around: In areas where a temporary cul-de-sac or turnaround is proposed, the applicant shall provide sufficient details on the plan showing the road section, dimensions of the roadway and the materials proposed. The cul-de-sac or turn-around shall comply with materials shown on the “Typical Road Section”, except topping could be omitted. Applicant shall provide cost in the Letter of Credit to cover the cost of the proposed temporary construction.

3.3 WATERMAINS AND APPURTENANCES CONSTRUCTION

1. General: All water main construction and related work shall conform to the provisions and specifications of the Monroe County Water Authority.

2. Water pipe and Fittings: A copy of the material and work specifications can be obtained from the Monroe County Water Authority, Norris Drive, Rochester, NY.

3.4 SANITARY SEWAGE FACILITIES

1. General Provisions

   A. Standard abbreviations in the text are listed below:

      American Standard Association (ASA)
      American Society of Testing and Materials (ASTM)
      American Welding Society (AWS)
      American Institute of Steel Construction (AISC)
      American Water Works Association (AWWA)

   B. The plans and specifications shall be read together. All questions as to their meaning shall be promptly submitted to the Department of Public Works. The Village's interpretation of the plans and specifications shall be final. The plans shall not be scaled for dimensions.

   C. Definition of Sewer Classifications:

      1.) Main Sewer: A sanitary sewer located within a road right-of-way or dedicated easement to which building sewers are tributary and conveys the sewage to a point of discharge or disposal, by gravity.

      2.) Sewer Lateral (Building Sewers): The extension from a building sanitary drain to the main sewer.

2. Design

   A. Sanitary sewage facilities shall be designed in accordance with current policies and directives of the County Health Department and the New York State Department of Environmental Conservation and the requirement outlined herein.

   B. These facilities shall be subject to approval of the Village during all stages of design and construction.

   C. Sanitary sewers shall be used for all developments.

   D. Connection to or extension of the sanitary sewer system will only be permitted where sufficient capacity exists in the collection/conveyance system. Where required by the designated Village Representative, the Developer may be required to conduct studies to demonstrate the proposed development will not adversely

impact other areas. Where adverse impact may be anticipated, the Developer will be required to construct off-site improvements to mitigate the impact of the proposed development.

E. Use of pump stations to provide sanitary service will only be considered where gravity sewers are not economical and requires the approval of the designated Village Representative. (Economical shall not be taken solely as the least expensive alternative). The design of pump stations and appurtenances shall be to the approval of the designated Village Representative. Appurtenance will include remote monitoring and operation, and provisions for emergency operation.

F. Materials shall be as specified in Section 6 of this chapter.

3. Sanitary Sewer Mains

A. No existing pipe line, conduit, cable pole, guy wire, or other utility or portion thereof shall be moved without the consent of the agency operating such utility. Any necessary changes in line and/or grade of the new sanitary sewer pipes shall be made only with the consent of the designated Village Representative.

B. The Developer's Engineer shall submit for approval, the sanitary sewer design computations and sketches. The computations shall clearly indicate the assumed density of soil, height of cover, trench width, safety factor and type of bedding proposed.

C. Sewers shall be sized to convey the flow of the development plus any future development that may reasonably be expected to be conveyed to the proposed sewer as required by the designated Village Representative.

D. The minimum size of sanitary sewers shall be eight-inch (8”) diameter and constructed with a minimum slope of 0.4%. The minimum cover over sewers shall be five feet (5’).

E. Dedicated sewers located outside the right of way shall be provided easements for the long-term operation and maintenance of the collection system. Easement widths will be a commensurate with the depth of sewer, soil conditions and relative position to other facilities affecting maintenance. For cover depths to ten feet (10’) the minimum easement width shall be twenty feet (20’) centered over the sewer line.

4. Sanitary Laterals

A. In designing sewer profiles consideration shall be given to the relationship of the house elevation to the sewer elevation to assure the installation of laterals on at least two percent (2%) grade, (1/4” per foot).

B. The minimum size of sanitary laterals shall be four inch (4”) diameter and minimum two percent (2%) grade, (1/4” per foot). Minimum cover over laterals shall be four feet (4’).

C. Provide cleanouts as indicated on standard details

5. Manholes

A. In general, orient the location of covers and steps by using the following criteria, with precedence given in the order presented:

1.) Safety - Give primary concern to safety considerations for providing convenient access to structure interiors.

2.) Covers and Pavements - To avoid future problems with snow removal or street cleaning, orient covers to lie completely outside of paved surfaces, including walks and roadways. If this cannot be accomplished, locate covers completely in pavement. Covers partially in pavement are not permitted without the prior approval of the designated Village Representative. When covers occur in paved areas, locate entirely within a single traffic lane and as near to the edge of pavement as is possible, but no closer than 8 inches from the edge of pavement.

3.) Ingress/Egress - Coupled with the above, convenient and safe access to within the structure must be evaluated. Coordinate cover location with pipe openings, structure benches and inverts, safety landings and the like. Make every effort to locate steps on a wall with no pipe penetrations and, where steps are not specified to be provided, consideration shall be given to the safest means of seating the feet of ladders which will be used for access to structure interiors.

B. Manhole spacing shall not exceed three hundred (300') feet.

C. The sanitary sewer profile shall be designed so that the minimum drop within the manhole is as outlined on the Standard Details.

D. All three-way manholes are to be five feet (5') in diameter or greater depending on the diameter of the connecting sewers.

E. Shallow manholes (depths less than 5'-3" from MH rim to pipe invert) shall be provided with a large frame and cover with removable dual lid as indicated on the Standard Details.

6. Materials

A. Sanitary Sewer Mains

1.) Flexible Pipe (PVC) - Gravity sanitary sewer mains shall be constructed of flexible pipe with integral bell, bell and spigot rubber ring gasketed joints as manufactured by: John Mansville, JM Eagle or approved equal with a minimum wall thickness of SDR-35. Sewer pipe shall meet ASTM Standard Specifications D-3034. The pipe and pipe fittings shall be made of PVC plastic having a cell classification of 12454-B, or 12454-C, or 13364-B as defined in ASTM D-1784.

2.) Gaskets shall conform to ASTM F-477. The gasket shall be locked securely in place by a groove formed in the bell to prevent displacement during assembly. The "locked-in" rubber seating ring shall also meet or exceed the requirements of ASTM D-3212.

3.) Pipe and fittings shall also meet or exceed the requirements of Uni-Bell UNI-B-5 recommended standard for integral, gasketed joint PVC sewer pipe and fittings.

B. Sanitary Sewer Laterals

1.) Flexible Pipe (PVC) - Gravity sanitary sewer laterals shall be constructed of flexible pipe with integral wall, bell and spigot rubber ring joints as manufactured by JM Eagle or approved equal with a minimum wall thickness of SDR-21. Sewer lateral pipe shall meet ASTM Standard Specifications D-2241. The pipe and pipe fittings shall be made of PVC plastic having a cell classification of 12454-B, or 12454-C, or 13364-B as defined in ASTM D-1784.

2.) Gaskets shall conform to ASTM F-477. The "locked-in" rubber seating ring shall also meet or exceed the requirements of ASTM D-3139.

C. Cleanout Riser Pipe

1.) Provide PVC SDR 21 meeting ASTM D-2241.

2.) Provide PVC Schedule 40 meeting ASTM D-1785. The pipe and fittings shall meet or exceed ASTM D-1784 (Grade I, Type I), and ASTM D-2152. All fittings shall be PVC Schedule 40, socket type conforming to ASTM D2466.

3.) Provide glued joints for cleanout risers.

D. Other Pipe

1.) Other types and classes of pipes may be approved for sewer construction if data is submitted by the design engineer to the designated Village Representative on the type and class of sewer pipe to be used in lieu of the above mentioned sewer pipes.

E. Detectable Underground Marking Tape

1.) Detectable marking tape shall be minimum six-inch (6") width, aluminum foil tape capable of being detected by a simple metal detector. The tape shall bear a printed identification of the line below and be color coded in accordance with APWA standards (Green – Sewer Lines).

F. Clean-Outs

1.) Fabricate clean out riser from PVC SDR 21 or PVC Schedule 40 pipe as described above. Provide brass screw plug. Joints of clean out riser shall be glued. Refer to standard details.

2.) Cleanouts used in paved areas shall be placed in a cast iron frame and cover and installed flush with finished grade. The castings shall be as manufactured by: Neenah Foundry Company or Syracuse Castings Company. The type shall be as indicated on the appropriate standard sheet.

G. Manholes

1.) The sanitary manhole bases shall be precast reinforced monolithic base with base integrally cast with wall risers conforming to ASTM C-478 with a minimum of 4000 psi concrete.

2.) The manhole barrels shall be constructed of 4000 psi precast, reinforced concrete sections manufactured in accordance with ASTM specifications C-478. The riser sections shall have tongue and groove ends and shall be of watertight construction. The riser and cover slab joints shall be assembled with rubber gaskets and then shall be sealed with flexible joint sealant in a sufficient quantity to completely fill the joints both inside and out.

3.) The manhole steps shall be copolymer polypropylene plastic steps with one half inch (1/2") Grade 60 steel reinforcement as manufactured by: M. A. Industries, Inc., Model PS2-PFS.

H. Frames and Covers

1.) The castings shall be of sufficient strength to sustain AASHTO H20-44 wheel loads. Covers shall have non-penetrating pick-holes and cast lettering "SANITARY". The frames and covers shall be as manufactured by: Neenah Foundry Company or Syracuse Castings Company models as indicated on the standard detail.

2.) Watertight manholes shall conform in size and construction shown for standard manholes. Watertight manholes shall be provided with two covers. The inner cover shall be set on a one quarter inch (1/4") rubber gasket and shall be fitted with a hold-down bar and locking device. The cover bearing surfaces shall be machined. The frame and cover shall be Neenah R-1755E or an approved equal.

3.) Shallow manholes shall be provided with a large frame and cover with removable dual lid. The smaller lid shall have lettering "SANITARY". Frame and cover shall be Syracuse Castings Company model as indicated on the standard detail or approved equal.

I. Sewer Brick

1.) Brick shall be ASTM designation C-32, Grade SS

J. Concrete for Bench Walls and Inverts

1.) Concrete shall be normal weight concrete meeting the following:

a.) Minimum compressive strength f'c: 3,000 psi @ 28 days
b.) Maximum slump: 3-1/2 inches + 1 inch
c.) Air Content: 4-6 percent + 1 percent by volume of total mix

K. Pipe Bedding

1.) Pipe Bedding for sewers shall consist of the following materials:

a.) Crushed Stone - A 50-50 mix of #1 and #2 stone
b.) No. 2 Crusher Run - Meet NYSDOT 304 Type 2

7. Trench Excavation, Bedding And Backfill

A. Excavated Materials

1.) Excavated material suitable for trench backfill shall be placed in spoil banks where it will not interfere with the work. Excavated material to be used for trench and structure backfilling shall be properly segregated to avoid mixture with topsoil or other unsuitable materials.

2.) Spoil banks shall be located on only one side of trenches, so arranged that the trench wall is not overloaded. Where there is insufficient space for material in spoil banks adjacent to the work, the excess material shall be removed to an approved stockpile area and brought back as required for backfilling.

3.) Excavated materials unsuitable for backfill shall be removed from the work area as it is excavated to a suitable location on site that does not impact existing drainage patterns and is not within existing drainage ways.

4.) Erosion and sedimentation control measures shall be used around all earthen material stockpiles.

B. Trench Excavation

1.) The trench excavation for sanitary sewers and appurtenances shall be of such width to insure proper bedding and backfill procedures. In general, the trench width shall be excavated to the outside diameter of the pipe plus one foot on each side of the pipe. See the appropriate standard sheets for details on trench excavation and the various types of bedding details.

2.) Bell joint holes shall be accurately located along the pipe bed. Each bell joint hole shall be cut sufficiently large for making the joint and not larger. It shall be required to achieve not less than ordinary pipe bedding, i.e., a foundation shaped to fit the lower portion of the pipe for its entire length.

3.) Water shall not be allowed to accumulate in trenches. The contractor shall furnish a sufficient pumping plant for dewatering, and shall provide and maintain at the contractor's own expense satisfactory drainage, whenever needed in the trench and other excavations. This shall be maintained during the progress of the work and through its completion and final inspection. No appurtenances or mains shall be laid in water.

4.) Hand excavation or tunneling methods shall be employed where deemed necessary by the designated Village Representative to preserve trees or protect existing structures.

5.) Where necessary, sheeting, and/or bracing shall be used to provide support and stability to trench walls.

6.) Take necessary precautions at all times to prevent flooding of adjacent property. Drainage ditches or other positive means of diverting and/or controlling water shall be employed.

C. Method Of Backfill Placement

1.) All pipes shall be haunched to spring line in accordance with the manufacturer's requirements. Completion of the pipe envelope shall be performed as specified in the appropriate detail.

2.) In all pipe trenches, whether in paved streets or not, the backfill shall be carefully "chinked" and tamped around the pipes. Pipe bedding shall be placed simultaneously and uniformly on both sides of the pipe. No stones shall be thrown into the trench. After the pipe has been properly bedded, approved backfill materials shall be deposited around the pipes. The placement of backfill material shall be by hand for a depth of at least twelve inch (12") above the pipe. The backfill material shall be thoroughly tamped. The backfill material must not be thrown down from above faster than the workers below can properly distribute and compact it.

3.) The remainder of the trench shall be backfilled with select earth in lawn areas and #2 crushed stone in pavement areas, placed in six inch (6”) lifts and compacted to the required density.

4.) When for any reason the work is left unfinished, all trenches and other excavations shall be backfilled to existing grade level by the end of the work day. If this is not possible, the trench shall be suitably barricaded, fenced or covered. Barricades shall be illuminated at night. Roadways and sidewalks shall be left unobstructed with their surface in a safe and satisfactory condition.

5.) All pipes of whatever character shall, when set, conform to the alignments and grades required by the plans; and as the work proceeds, all of the required fixtures that are indicated upon the plans, or that may be required during the progress of the work, shall be installed in their proper positions.

6.) Rough cleanup shall follow each backfilling operation. The cleanup shall include the removing of all debris, replacing driveways in an accessible manner, replacing disrupted drainage culverts and ditches, and rough grading. The area shall be leveled and may be slightly mounded to allow for future settlement.

7.) Where the trench passed under a ditch, stream, and swale or drainage way, the backfill shall be left in such a manner as to allow proper drainage as they existed prior to construction. The surface must be entirely free of lumps of earth, stones, and debris.

8.) For all pipe, the Contractor shall install a detectable underground marking tape. Install at depths as shown on the standard details.

9.) Adjacent roadways shall be swept clean of all debris and flushed with water if necessary.

10.) The contractor shall provide and maintain at own expense sufficient pumping as may be required to keep all excavated areas free from water accumulation during the progress of work and through its completion and final inspection. No mains or appurtenances shall be laid in water

8. Laying Sewer Mains And Appurtenances

A. Method Of Placement

1.) The sewer main and lateral pipe shall be set to true line and grade and properly bedded. The sewer pipe shall be observed for line and grade by Village Representative before backfilling begins. Should any portion of the sewer line be backfilled without such observation, the contractor shall uncover the pipe for inspection when so directed by the Village Representative.

2.) The pipe fittings and specials shall be installed to the required line and grade, and shall be firmly bedded in the trench so the pipe barrel is uniformly supported and cradled. All pipes shall fit together to form a smooth, even invert.

3.) Pipe shall be installed so that a pipe joint occurs not more than two feet (2') from the outside of the wall or manhole or structure to which the pipe connects.

4.) Pipe shall be laid from the downstream end upgrade with spigot ends placed in the direction of flow. All pipes shall be laid to the line and grade shown on the plan unless otherwise directed. Connections to existing manholes or pipe stubs shall be made to the satisfaction of the designated Village Representative.

5.) Push-on joints shall be assembled in full accordance with the manufacturer's instructions. Lubricants and solvent for pipe jointing shall be as recommended by the manufacturer of the pipe.

6.) Any pipe entering a manhole shall be neatly cut with proper sharp tools before installation in the manhole. Pipe shall not be “chipped off” after installation.

7.) All pipe joints in clean outs shall be glued to prevent “spinning” of clean out when attempting to unscrew the threaded cap.

8.) The sewer pipe shall be observed for bedding condition by the Village’s Representative before backfilling operations are started. If any portion of the sewer line has been backfilled without so being observed by the Village’s Representative, the contractor shall uncover the pipe for inspection when directed to do so.

9.) All pipe line materials shall be carefully handled. The pipe and fittings shall be lifted by hoists or lowered on skid ways in such a manner to avoid shock to any of the materials being installed. Pipe and fittings shall not be dropped or dumped when being unloaded at the site or when being placed in the trench.

10.) A minimum separation of ten feet (10’) horizontally and eighteen inches (18”) vertically shall be maintained between the outside edges of all sewer and water lines. Horizontal separation may be less than ten feet (10’) provided the bottom of the water main is at least eighteen inches (18”) above the top of the sewer, or if this vertical separation cannot be obtained, or the water main passes under the sewer, the sewer shall be constructed of materials and joints equivalent to water main construction standards and shall be pressure tested to assure water tightness after backfilling. Water mains passing under sewers shall have a vertical separation of at least eighteen inches (18") measured from the bottom of the sewer to the top of the water main. The water main shall be centered at the point of crossing so the joints will be equidistant and as far as possible from the sewer; and the sewer shall have adequate support to prevent excessive deflection of the joints and possible settling on and breaking of the water main.

11.) Where a water line is approved to cross under a sewer, adequate structural support (# 2 crusher run compacted fill) shall be provided for the sewer to prevent excessive deflection of joints and settling of the sewer on the water line.

12.) Each pipe, fitting and appurtenance shall be inspected before it is lowered into the trench. The interior of the pipe and all joint surfaces shall be thoroughly cleaned and shall thereafter be maintained clean. The open ends of all pipes shall be securely plugged whenever pipe laying is not in progress. No water shall be drained into the pipeline during construction.

13.) Care shall be taken 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. 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 Contractor.

B. Joining Pipe

1.) The pipe shall be laid upgrade with the spigot end placed in the direction of the flow. The pipe shall be fitted together to form a smooth, even and continuous conduit. Pipes that have been disturbed after laying shall be re-laid.

C. Installation Of Precast Manholes

1.) Precast Bases: Place stone bedding, level, and tamp firmly in place. When absolutely necessary, pea stone may be used for minor grade adjustments in the stone bedding, but the depth shall not exceed three quarter inch (3/4”). Carefully lower precast base in place, taking extra care not to shift the stone bedding, and align all openings with the pipes to be connected. Leveling of the base by tamping or pounding on the top of the precast product is prohibited. If base is not level, lift it out; readjust stone bedding, and reset base. Continue this procedure until base is level.

2.) Precast Risers and Top Sections: Thoroughly clean all joints of precast sections and install jointing material. Carefully set precast sections in place, making sure that rubber gasket jointing material is not displaced and that a good seal is attained.

3.) Filling Precast Section Joints: Fill interior and exterior joints with flexible joint sealer. Cover inside and outside of joint with two coats of Carboline 300M, or approved equal.

4.) Complete inverts and benches.

5.) All manhole frames shall be set firmly in a bed of mortar not less than half inch (1/2”) thick. Concrete fill shall be placed around the outside as shown on the details and kept two inches (2”) below the top of the frame.

6.) Precast grade rings set in mortar shall be used to bring manhole frames to grade, maximum six inches (6”) height for grade ring.

7.) Contractor shall be responsible for maintaining and keeping all manholes clean and free of debris.

D. Wye Branches

1.) The wye branches for sanitary sewers shall be supplied in a strength classification equal to or stronger than the main in which the wyes are to be installed.
2.) Joints for approved piping systems shall be of a type approved by the designated Village Representative and shall be installed according to the manufacturer's specifications.

3.) Wye branches shall be placed in sewers for lateral connections at the

approximate centerline for each lot along the street, unless otherwise approved by the designated Village Representative. The branches shall be placed with the opening upward at a 45-degree angle from the horizontal. Whenever the wye branch is located at a depth in excess of ten feet (10'), a crushed stone encased riser shall be extended upward at a 60 degree angle from the horizontal to a depth of eight feet (8') below the finished grade or to such elevation as the Village may establish. Refer to Standard Details.

4.) The open ends of wye branches or laterals shall be tightly sealed with approved plugs installed in place as directed in the pipe manufacturer's latest installation manual. The plugs or caps shall be able to withstand all air test pressures. The ends of all wye branches or laterals shall be marked with a witness stake (min. 2" x 4") extending from the end of the pipe to four feet (4') above existing grade, the top of which shall be painted with the appropriate colored enamel green for sanitary.

5.) All sewer connections to mains shall be separated by a minimum of ten feet (10').

6.) A record shall be kept of the location and depth of the wye branch connection to sanitary sewer main. Information shall be shown on the Record Drawings.

E. Cleanouts

1.) All sanitary sewer laterals shall be provided with a cleanout within ten feet (10') outside of building and at a maximum spacing of seventy five feet (75') between cleanouts thereafter. Provide cleanouts at all bends.

2.) Vertical cleanouts shall be the same size as the lateral pipe it services.

3.) Cleanout adjacent to building shall be left above grade at the time of issuance of a certification of occupancy.

4.) Cleanouts used in paved areas shall be placed in a cast iron frame and cover and installed flush with finished grade. The castings shall be as manufactured by: Neenah Foundry Company or Syracuse Castings Company. Refer to Standard Details

F. Manholes

1.) It is the intent of these specifications to describe the construction of first class manholes which will exclude all ground water by means of carefully constructed foundations, rubber gasketed and mortared barrel joints, all grouting required, and coating the inside and outside with two (2) coats of Asphaltic Manhole Sealer.

2.) The sanitary sewer manholes shall be constructed at the locations shown on the plans or as designated by the Village in the field so as not to exceed three hundred feet (300') between manholes. The manholes shall be standard or drop manholes with paved or half-pipe inverts and shall conform to the details shown on the standard sheets for manholes and inverts.

3.) At precast manhole bases, the trench bottom shall be over-excavated to a minimum of six-inches (6”) and backfilled with crushed stone to properly position and level the manhole base (See Standard Details). Earth fill will not be permitted to adjust grade for over-excavation. If the trench bottom should be unstable or become unstable, the contractor shall stabilize the area upon which the manhole base will rest by excavating and placing crushed stone to a depth ordered by the designated Village Representative.

G. Manhole Bases

1.) Shallow manholes shall be used wherever depth of manhole is less than the minimum for a precast base. Refer to Standard Details.
2.) The manhole bases shall be constructed of 4,000 psi concrete cast in place with the base pour lapping the first riser section to provide a water tight seal. The concrete shall be placed under the extended at least six inch (6”) outside the barrel.

H. Manhole Barrels And Tops

1.) Riser sections shall be of maximum practicable length to attain the specified grade elevation with the minimum number of joints and the shortest possible chimney. The riser and top slab joints shall be assembled with rubber gaskets and then sealed with a flexible joint sealant.

2.) The flat slab tops shall have a minimum thickness of eight inches (8") and shall be constructed of 4000 psi reinforced concrete manufactured in accordance with ASTM specifications C-478. The flat slab shall be reinforced to withstand AASHTO H2O-44 concentrated wheel loading and thirty percent (30%) impact loading. An opening matching the casting frame inside base diameter shall be eccentrically located in the flat roof slab.

3.) Eccentric taper top sections shall be used on manholes having a depth greater than nine feet (9’). The flat slab tops shall have a minimum thickness of eight inches (8”) and be constructed of 4,000 psi reinforced concrete. See Standard Details.

I. Manhole Steps

1.) Steps in riser and conical sections shall be aligned in each section so as to form a continuous ladder with runs equally spaced vertically in the assembled manhole at a maximum distance of twelve inches (12”) apart. The lowest rung shall be within eighteen inches (18”) of solid footing (e.g., structure bench) upon which the person descending the rungs would normally step. The uppermost rung shall be set within eighteen inches (18”) of the rim of the structure frame to act as a handhold. Make every effort to locate rungs on a wall with no pipe penetrations.

2.) Installation of the step shall be performed by the precast manhole manufacturer into the precast sections. Spacing shall conform to dimensions described in this specification.

3.) No other materials or products shall be used for steps.

J. Manhole Frames And Covers

1.) Bricks for frame height adjustment. Brick shall be culled of all irregulars and unsound or damaged brick before laying.

2.) Precast grade rings may also be used for frame height adjustment.

K. Manhole Sealer

1.) All sanitary sewer manholes shall have the inside and outside completely sealed with a heavy-duty water repellent, protective coating, made of coal tar epoxy and shall meet or exceed AWWA C-210. The sealer shall be Carboline 300M or an approved equal. The interior and exterior surfaces of concrete barrels shall be sealed by the manufacturer and touched up or recoated by the contractor.

L. Manhole Openings

1.) Allowances for all proposed pipe openings and gaskets shall be cast at the factory by the manufacturer. No field cutting of the structures shall be permitted. All pipe to manhole connections shall utilize a gasket entry system as shown on the appropriate standard sheet. For connections to existing manholes, all openings shall be cored using an approved method. Pipes shall be installed using an approved connector, Press Seal Gasket or approved equal see Standard Details.

2.) Openings in precast riser or base sections to receive pipes shall be accurately cast, both vertically and circumferentially. Where openings are incorrectly cast, the precast section shall be removed from the project site and replaced with a satisfactory riser or base.

3.) Sewer pipe shall not enter manhole structure through joints of manhole barrels.

M. Manhole Inverts And Benches

1.) The contractor shall embed in the concrete base a continuous half-pipe invert that is of the correct slope and size.

2.) If the invert cannot be constructed of half-pipe, a brick invert shall be used that is of the correct slope and smooth. Both the brick invert and half-pipe inverts shall be extended with brick upward to the top of the pipes. Bricks shall be ASTM designation C-32, Grade SS.

3.) When PVC material is used, all brick, concrete or other masonry material that interfaces with the PVC, shall adhere to the PVC with one hundred percent (100%) epoxy non-shrink grout.

4.) Minimum slopes of those indicated on the Village's Standard Details sheets shall be provided for the inverts thru the manhole. Wherever the inlet invert is such that the nine inches (9") maximum slope is exceeded, the inlet pipe shall be connected with a twenty four inch (24") minimum outside drop and cleanout pipe half bricked up.

5.) When drop inverts are required, the entire excavated area around the drop pipe shall be filled with compacted crushed stone or controlled density fill extending not less than twenty four inches (24") along the pipe and with a minimum cover of six inches (6") as shown on the appropriate standard sheets.

6.) Bench walls shall be constructed of sewer brick and bench filled with concrete. Bench walls shall be carried a minimum of one brick course above top of highest pipe entering the manhole. Slope the top surface of the benching towards the channel at a pitch of approximately one half-inch/foot.

7.) After initial setting, bare concrete or grout shall be waterproofed with coal tar epoxy coating.

N. Shallow Manholes

1.) Where there is insufficient depth to construct standard manholes, shallow manholes shall be constructed as shown on the appropriate Standard Details.

2.) The opening in the top slab for shallow manholes shall be constructed to accept the appropriate frame and cover

O. Manhole Bedding And Backfill

1.) All manholes shall be supported as specified in the appropriate Standard Details. Backfilling around the structure shall be accomplished as required with crushed stone or run of bank gravel brought up uniformly in six inch (6") lifts compacted to ninety five percent (95%) Modified Proctor density.

9. Testing

A. General

1.) Upon completion of construction of the sanitary sewer, including trench backfill, the Contractor shall clean and flush all pipes. All water needed to flush the sewer system shall be furnished by the Contractor. The system shall be left free of all stones, sand, silt, or mortar projects. The benches and inverts of manholes and bottoms of inlets shall have all mortar dropping chipped away to leave a smooth, clean surface. If any section of pipe cannot

be flushed clean, mechanical methods shall be used to dislodge any deposits in the pipe.

2.) All materials flushed from the sanitary sewer shall be intercepted and removed to prevent the materials from entering the existing sanitary sewer system.

3.) Every section of pipe between manholes shall be visually checked with a bright light. If the illuminated interior of the pipe line shows poor alignment, displaced pipes or any other defects, the defects shall be corrected.

4.) Air testing of all sewer lines and appurtenances shall be performed (See Air Test specs contained herein). Sanitary laterals shall be installed to the property line and tested with the sewer main.

5.) Manholes shall be either vacuum tested, or tested by infiltration in high groundwater conditions, or by exfiltration. In the exfiltration test, the manhole shall be filled with water to within three inch (3") of rim and tested for a four (4) hour period with no loss of water.

6.) Deflection tests shall be performed on all flexible pipe. The test shall be conducted after the final backfill has been in place at least thirty (30) days. No pipe shall exceed a deflection of five percent (5%). Deflection tests are to be run using a rigid ball or mandrel, having a diameter of not less than ninety five percent (95%) of the inside diameter of the pipe. The test shall be performed without mechanical pulling devices. If deflection exceeds five percent (5%), replacement of the defective sewer will be required.

7.) Upon satisfactory completion of all required tests, the line shall be televised in its entirety. A digital color video in DVD format (with voice over narration) and log of the televising are to be provided to the designated Village Representative.

8.) Testing shall be performed in the presence of designated Village Representative.

B. Air Test (Low Pressure) For Gravity Sewer Lines

1.) Equipment: Cherne Air-Loc Equipment, as manufactured by: Cherne Industrial, Inc., of Edina, Minnesota or approved equal. Equipment used shall meet the following minimum requirements:

a.) Pneumatic plugs shall have a sealing length equal to or greater than the diameter of the pipe to be inspected.

b.) Pneumatic plugs shall resist internal test pressures without requiring external bracing or blocking.

c.) Three 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.
- From sealed line to control panel for continually monitoring the air pressure rise in the sealed line.

C. Procedure

1.) Air pressure tests shall be run following the guidelines of UNI-Bel (UNI-B-6-79) "Recommended Practice: For Low Pressure Air Testing of Installed Sewer Pipe."

2.) All pneumatic plugs shall be tested prior to use to verify ability to seal said line section.

3.) After a manhole to manhole reach of pipe has been backfilled and cleaned, the plugs shall be placed in the line at each manhole and inflated to 25 psig. Plug the upstream end of the line first to prevent any upstream water from collecting in the test line.

4.) When plugs are being placed, the pipe adjacent to the manhole shall be visually inspected to detect any evidence of shear in the pipe due to differential settlement between the pipe and the manhole. A probable point of leakage is at the junction of the manhole and the pipe, and this fault may be covered by the pipe plug, and thus not revealed by the air test.

5.) Low pressure air shall be slowly introduced into the sealed line until the internal air pressure reaches 4.0 psig greater than the average back pressure of any groundwater above the pipe, but not greater than 9.0 psig. If groundwater is present, an air pressure correction must be made to the normal initial test pressure. This may be accomplished by dividing the vertical height (in feet) of the groundwater above the pipe invert by 2.31. This value is added to the initial test starting pressure. The allowable pressure drop and duration of the test are not affected by this adjustment.

6.) After a constant pressure of 4.0 psig (greater than the average groundwater back pressure), is reached, the air supply shall be throttled to maintain a constant internal pressure for a minimum of five (5) minutes. This time permits the temperature of the entering air to equalize with the temperature of the pipe wall. During the stabilization period, check all capped and plugged fittings with a soap solution to detect any leakage at these connections.

7.) When temperatures has equalized and the pressure stabilized at 4.0 psig (greater than the average groundwater back pressure), the air hose from the control panel to the air supply shall be shut off or disconnected. The continuous monitoring pressure gauge shall then be observed while the pressure is decreased to no less than 3.5 psig (greater than the average back pressure of any groundwater over the pipe). At a reading of 3.5 psig, or any

convenient observed pressure reading between 3.5 psig and 4.0 psig (greater than the average groundwater back pressure), timing shall commence with a stopwatch or other timing device that is at least 99.8 percent accurate.

8.) If the time shown in Table below for the designated pipe size and length elapses before the air pressure drops 1.0 psig, the section undergoing tests shall be passed and shall be presumed to be free of defects. The test may be discontinued once the prescribed time has elapsed even though the 1.0 psig drop has not occurred. If the pressure drops 1.0 psig before the appropriate time shown in Table has elapsed, the air loss rate shall be considered excessive and the section of pipe has failed the test.

9.) If the pipe line fails, the contractor shall, at his own expense, determine the source of leakage. The contractor shall then repair or replace all defective materials. The air test shall be repeated until each reach of sewer meets with the test requirements.

10.) Specification Time Required For A 1.0 Psig Pressure Drop For Size And Length Of Pipe Indicated

Pipe Diameter, (inches)	Minimum Time (Seconds)	Length for Minimum Time (feet)	Time Formula (seconds) for Longer Lengths (L= feet)
4	3:46	597	0.380 x L
6	5:40	398	0.854 x L
8	7:34	298	1.520 x L
10	9:26	239	2.374 x L
12	11:20	199	3.418 x L
15	14:10	159	5.342 x L
18	17:00	133	7.692 x L
21	19:50	114	10.470 x L
24	22:0	99	13.64 x L
27	25:30	88	17.306 x L
30	28:30	80	21.266 x L
33	31:10	72	25.852 x L
36	34:00	66	30.768 x L

11.) In areas where ground water is known to exist, the contractor shall install, if directed by the Village, a one-half inch (1/2”) diameter, brass or plastic (do not use iron), capped pipe nipple, approximately ten inches (10”) long, through 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 ground water shall be determined by removing 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 2.31 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 feet (11.5'), then the added pressure will be 5 psig. This increases the 3.5 psig to 8.5 psig, and the 2.5 psig to 7.5 psig. The allowable drop of one pound and the timing remain the same.

D. Vacuum Test For Manholes

1.) Equipment: NPC Manhole Vacuum Tester, as manufactured by NPC Systems, Inc. of Worchester, MA. or approved equal.

2.) Procedure:

a.) All manholes shall, without exception, be tested after backfilling. It is strongly suggested that testing also be performed prior to backfilling to avoid unnecessary excavation for repairs.

b.) When the sanitary sewer has passed testing and has been approved by the designated Village Representative the manholes shall be tested.

c.) All inlet and outlet pipes shall be plugged, taking care to securely brace the plug from being drawn into the manhole.

d.) The test head shall be placed inside the opening for the frame and cover and the seal inflated in accordance with the manufacturer's recommendations.

e.) A vacuum of ten inches (10") of mercury shall be drawn and the vacuum pump shut off. With the valves closed, the time shall be measured for the vacuum to drop to nine inches (9"). The manhole shall pass the test if the time is greater than the following:

Manhole Depth	Time to Drop 1" Hg (seconds)		
	4 ft. Dia. Manhole	5 ft. Dia. Manhole	6 ft Dia. Manhole
10 ft. or less	60	75	90
10 ft. to 15 ft	75	90	105
15 ft. to 25 ft	90	105	120

f.) If the manhole fails the initial test, necessary repairs shall be made. Retesting shall proceed until satisfactory results are obtained.

10. Lateral Connections To Existing Sewers

A. Building lateral connections to sanitary sewers shall be made at openings provided in the sewer main. The location of such openings may be obtained from the designated Village Representative.

B. The contractor shall expose the sewer main in the presence of the designated Village Representative. If the sewer is found to be in good condition, the connection may be made using an approved saddle. If the sewer is found to be in poor conditions, the plumber shall install a wye fitting, sections of PVC pipe and suitable coupling to connect to the existing sewer main.

C. Where no openings exist, the designated Village Representative shall direct the plumber on the type and location of the cut-in to be made to the sewer and all work shall be in accordance with the directions given. Taps on vitrified tile pipe shall be made with mechanical tapping equipment. Any breaking or degradation of the sewer main by cutting in shall be repaired at the expense of the plumber and to the satisfaction of the Village Representative.

D. Taps on vitrified tile pipe shall be made with mechanical tapping equipment. Any breaking or degradation of the sewer main by cutting-in shall be repaired at the expense of the plumber and to the satisfaction of the designated Village Representative.

E. No connection into the sewer shall project beyond the face of the inside wall.

F. The plumber shall check to see that all lateral connections have an unobstructed flow from the point of connection to the sewer main. Any obstruction in the lateral connection to the main shall be removed before the connection is made by the plumber.

G. Connections to sanitary sewers shall be made with extra heavy cast iron pipe or flexible SDR-21 pipe as directed by the Village not less than four inches (4”) in diameter. The cast iron pipe shall be sound, cylindrical, smooth, of uniform thickness and shall be coated inside and out with coal tar pitch applied hot. Joints shall be made with an approved rubber gasket. Cleanouts shall be provided along the lateral so that the length of any section shall not exceed seventy five feet (75’) without the provision of a cleanout. A cleanout shall be installed within ten feet (10’) of the building. See Standard Details.

H. All fittings shall be recessed with smooth, continuous inner surfaces. Change in direction of flow shall be made by the use of proper fittings. Where required, one-sixteenth bends shall be placed at least one foot apart. One-eighth bends may be used when permitted by the designated Village Representative. The use of one-quarter bends shall not be permitted. The trench excavation, pipe laying, bedding and backfill for lateral connections shall conform to the specifications as set forth under excavation-bedding and backfill and laying sewer mains and appurtenances. See Standard Details.

11. <u>Maintenance Of Sewage Flows</u>

A. Sewage flows from upstream sewers and laterals shall be maintained without interruption during the life of the project. Any method for bypassing sewage flows shall be submitted in writing to the designated Village Representative for

approval prior to start of bypassing. Included in the submittal shall be the following:

1.) A sketch and description indicating:

a.) The method for any plugging of sewers and location of same
b.) Pumps and bypass pump location, size and pump capacity

2.) Method of handling flows after working hours

3.) Method of testing newly installed sewers

4.) Any alternative or back-up measures for handling sewage flows

12. In the event that the Contractor's temporary modification to the sewer system, or service laterals for maintenance of sewer service, results in any damage to public or private property, the Contractor shall repair the damage including cleaning of basements where sewage has backed up, as directed by the designated Village Representative.

3.5 STORM DRAINAGE FACILITIES

1. General Provisions

A. Standard abbreviations in the text are listed below:

American Standard Association (ASA)
American Society of Testing and Materials (ASTM)
American Welding Society (AWS)
American Institute of Steel Construction (AISC)
American Water Works Association (AWWA)

B. The plans and specifications shall be read together. All questions as to their meaning shall be promptly submitted to the Department of Public Works. The Superintendent of Public Works' interpretation of the plans and specifications shall be final. The plans shall not be scaled for dimensions.

C. Definition of Sewer Classifications:

1.) Main Storm Sewer: A storm sewer located within a road right-of-way or dedicated easement to which road drainage and building sewers/laterals are tributary and conveys the storm water to a point of discharge by gravity.

2.) Storm Sewer Lateral (Building Sewers): The extension from a building drains to the main storm sewer.

2. Design

A. General
1.) The preservation of natural water courses is preferable to construction of

drainage channels, therefore natural water courses should be preserved.

2.) Storm sewers shall be used to collect and convey drainage from all roads and within all developments.

3.) Storm drainage facilities will be required to manage both water quantity and quality. In no case shall the discharge rate exceed the pre-development conditions without the approval of the designated Village Representative

4.) Storm drainage facilities shall be designed in accordance with current policies and directives of the County Health Department and the New York State Department of Environmental Conservation and the requirements outlined herein.

5.) The storm sewer must be hydraulically sized with a suitable outlet so as to perform to the design criteria as outlined in the American Society of Civil Engineers Manual entitled Design and Construction of Sanitary and Storm Sewers (most recent edition).

6.) Generally accepted practices shall be employed to facilitate the conveyance of storm water so that stagnation, ponding, surcharging and backwatering of and within the system do not occur, while providing slopes that promote self-flushing velocities of three (3) feet per second when flowing full.

7.) The design engineer shall be responsible for the design of a suitable storm water drainage system based on the size of the drainage area. The appropriate formulas shall be used to calculate and design the drainage system. A minimum ten (10)-year storm frequency shall be used to design the storm water system without surcharging. The design engineer shall submit calculations and information based on the ten (10)-year and twenty five (25)-year storm frequency indicating the consequences of such a storm event and impact on the storm water system and property. One copy of all such criteria shall be submitted to the Village with the preliminary plans. The design engineer shall indicate on the plans and record drawing the type, size, and class or gauge of all storm drains, detail of the type of the bedding for the pipe and also swale and ditch dimensions.

8.) The minimum time of concentration to the first inlet shall be taken as not more than fifteen (15) minutes.

9.) If the outlet for storm water is not available, the developer must provide, at his expense and without cost to the Village of Honeoye Falls, any and all easements necessary and also do any and all excavation and/or placing of pipes, conduits or drainage structures outside of the right-of-way. Any storm sewer outlet or drainage ditch needed beyond the limits of the project must be clearly noted, approved and detailed on the preliminary and as built plans. Permission from affected property owners with proper approvals must be obtained prior to commencing work.

10.) Connection to or extension of the storm sewer system will only be permitted where sufficient capacity exists in the collection/conveyance system. Where required by the designated Village Representative, the Developer may be required to conduct studies to demonstrate the proposed development will not adversely impact other areas. Where adverse impact may be anticipated, the Developer will be required to construct off-site improvements to mitigate the impact of the proposed development.

11.) These facilities shall be subject to approval of the Village during all stages of design and construction.

12.) The design engineer and contractor shall follow the specifications, standard sheets and approved plans for the design and construction of catch basins, drop inlets, field inlets, manholes, frames and grates, materials and methods, pipe bedding details and backfilling requirements.

B. Storm Sewer Mains

1.) No existing pipe line, conduit, cable pole, guy wire, or other utility or portion thereof shall be moved without the consent of the agency operating such utility. Any necessary changes in line and/or grade of the new sanitary sewer pipes shall be made only with the consent of the Designated Village Representative.

2.) The Developer's Engineer shall submit for approval, the storm sewer strength design computations and sketches. The computations shall be signed and sealed by a professional engineer licensed by the state of New York and shall clearly indicate the assumed density of soil, height of cover, trench width, safety factor and type of bedding proposed.

3.) Sewers shall be sized to convey the flow of the development plus any future development that may reasonably be expected to be conveyed to the proposed sewer as required by the designated Village Representative.

4.) The minimum size of storm sewers shall be twelve-inch (12”) diameter, except of catch basin crossovers, which may be eight-inch (8”) diameter. The minimum slope shall as necessary to provide a velocity of three feet (3’) per second when flowing full. The minimum cover over storm sewers shall be four feet (4’).

5.) Dedicated storm sewers located outside the right of way shall be provided easements for the long-term operation and maintenance of the collection system. Easement widths will be a commensurate with the depth of sewer, soil conditions and relative position to other facilities affecting maintenance. For cover depths to ten feet (10’) the minimum easement width

C. Laterals

1.) The minimum size of storm laterals shall be six-inch (6") diameter and minimum one percent (1%) grade, (1/8" per foot). Minimum cover over laterals shall be four feet (4').

2.) In designing storm sewer profiles consideration shall be given to the relationship of the house elevation to the sewer elevation to assure the installation of laterals on at least one percent (1%) grade, 1/8" per foot for six-inch (6") laterals.

3.) Provide cleanouts as indicated on Standard Details.

D. Manholes

1.) In general, orient the location of covers and steps by using the following criteria, with precedence given in the order presented:

a.) Safety - Give primary concern to safety considerations for providing convenient access to structure interiors.

b.) Covers and Pavements - To avoid future problems with snow removal or street cleaning, orient covers to lie completely outside of paved surfaces, including walks and roadways. If this cannot be accomplished, locate covers completely in pavement. Covers partially in pavement are not permitted without the prior approval of the Superintendent of Public Works. When covers occur in paved areas, locate entirely within a single traffic lane and as near to the edge of pavement as is possible, but no closer than eight inches (8") from the edge of pavement.

c.) Ingress/Egress - Coupled with the above, convenient and safe access to within the structure must be evaluated. Coordinate cover location with pipe openings, structure benches and inverts, safety landings and the like. Make every effort to locate steps on a wall with no pipe penetrations and, where steps are not specified to be provided, consideration shall be given to the safest means of seating the feet of ladders which will be used for access to structure interiors.

2.) Manhole spacing shall not exceed three hundred feet (300').

3.) The manhole's diameter shall be a minimum four feet (4'), or larger depending on the diameter of the connecting sewers and orientation of connecting sewers. See Standard Details.

4.) Shallow manholes (depths less than 5'-3" from MH rim to pipe invert) shall be provided with a large frame and cover with removable dual lid as indicated on the Standard Details.

E. Catch Basins

1.) Catch basins shall be located:
a.) At intervals not exceeding four hundred feet (400'),

b.) At low points, intersection and other location determined by the designated Village Representative.

2.) Catch basins shall not be located within vehicular traffic areas such as intersections and/or driveways.

3.) Catch basins within gutters shall be placed at lot lines where possible.

4.) Catch basins shall be connected to manholes or field inlets, except at crossovers where they may be connected to other catch basins.

5.) Frames and grates shall be designed to conform to the finished grade.

3. Materials

A. Strength Classification

1.) The pipe shall be designed as to proper strength classification by the Developer's licensed professional engineer and shall be stated on the plans. Height of cover, nature of foundation soil, type of bedding and trench width shall be considered in specifying the pipe. Developer shall be responsible for providing extra strength bedding, cradle or encasement if the design conditions cannot be met in the field. Whenever the storm sewer is under the road, the Village requires that the Developer's engineer specify the correct class for H-20 loading at the sewer depth.

2.) Construction loads may be higher than final loads. Follow the manufacturer's recommendations to protect pipe during construction.

B. Special Construction

1.) Other types of storm sewer pipe may be used to meet unusual construction conditions when approved by the Village Engineer and designated Village Representative. Concrete encasement or cradle for the storm sewer may be required where excessive loads are expected, particularly in shallow trenches or where subsoil conditions are unsatisfactory.

C. Storm Sewer Mains

1.) Flexible Pipe – Smooth Interior Corrugated Polyethylene Pipe (SICPP)

a.) Corrugated polyethylene pipe storm sewers shall be high-density corrugated polyethylene smooth interior pipe. Four-inch to ten-inch (10") diameter pipe shall conform to AASHTO M252 with the addition of smooth interior and 12-inch to 36-inch (12"-36") diameter pipe shall conform to AASHTO M294, Type S. Material compounds shall conform to ASTM D3350. Pipe shall be Hi-Q as manufactured by Hancor, N-12 as manufactured by Advance Drainage Systems, Inc., or approved equal.

b.) Pipe joints and fittings shall be of the same material as the pipe. Provide bell and spigot joints with a gasket conforming to ASTM F-477.

2.) Flexible Pipe – Polyvinyl Chloride (PVC)

a.) Gravity storm sewer mains shall be constructed of flexible pipe with integral-bell, bell and spigot rubber ring gasketed joints as manufactured by JM Eagle or approved equal with a minimum wall thickness of SDR-35.

b.) Storm sewer pipe shall meet ASTM Standard Specifications ASTM D-3034 for 4”-15”, and ASTM F-679 (wall thickness T-1) for 18”-24”. The pipe and pipe fittings shall be made of PVC plastic having a cell classification of 12454-B, or 12454-C, or 13364-B as defined in ASTM D-1784.

c.) Gaskets shall conform to ASTM F-477. The gasket shall be locked securely in place by a groove formed in the bell to prevent displacement during assembly. The “locked-in” rubber seating ring shall also meet or exceed the requirements of ASTM D-3212.

d.) Pipe and fittings shall also meet or exceed the requirements of Uni-Bell UNI-B-5 recommended standard for integral, gasketed joint PVC sewer pipe and fittings.

e.) PVC pipe shall not be used as driveway culverts.

3.) Rigid Pipe - Offset Reinforced Concrete Pipe (RCP)

a.) Reinforced Concrete Pipe: Shall be supplied in conformance with ASTM C-76/AASHTO M-170 Class IV, Wall Thickness B. Joints shall be bell and spigot type with compression type gasket meeting ASTM C-433/AASHTO M-198. This pipe and joint material is considered minimum. Field conditions may warrant additional reinforcement.

4.) End Sections

a.) Aluminum End Section: For added corrosion resistance, aluminum ends sections meeting AASHTO M-196 and ASTM B-744; minimum 16 gauge shall be used. On corrugated polyethylene pipe storm sewers, aluminum end sections shall be of a diameter one size larger than the polyethylene pipe used.

b.) Concrete End Section: End sections shall conform to Section 706-02 of the NYSDOT Standard Specifications dated May 4, 2006 (and any subsequent revisions). Concrete strength shall be minimum 4,000 psi at 28 days. Pipe to end section connection shall match joints of concrete pipe.

D. Storm Sewer Laterals

1.) Flexible Pipe – Polyvinyl Chloride (PVC)

a.) Storm sewer laterals shall be constructed of flexible pipe with integral bell, bell and spigot rubber ring gasketed joints as manufactured by Johns-Manville Company or approved equal with a minimum wall thickness of

SDR-21.

b.) Storm lateral pipe shall meet ASTM Standard Specification ASTM D-2241. The pipe and pipe fittings shall be made of PVC plastic having a cell classification of 12454-B, or 12454-C, or 13364-B as defined in ASTM D-1784.

c.) Gaskets shall conform to ASTM F-477. The "locked-in" rubber seating ring shall also meet or exceed the requirements of ASTM D-3139.

2.) Rigid Pipe – Cast Iron Pipe (CIP)

a.) Storm sewer laterals may be constructed of CIP, ASA designation Class 22 with "O" ring joints and may be laid in undisturbed earth. Laterals shall be six-inch (6") diameter minimum, service weight. Lateral pipe within the right-of-way or easement shall be PVC SDR 21 as described above.

E. Other Pipe

1.) Other types and classes of pipes may be approved for storm sewer construction if data is submitted by the design engineer to the designated Village Representative on the type and class of storm sewer pipe to be used in lieu of the above mentioned sewer pipes.

F. Catch Basin Leads

1.) Catch Basin leads shall be one of the following as described above:

a.) Flexible Pipe – Smooth Interior Corrugated Polyethylene Pipe (SICPP)

b.) Flexible Pipe – Polyvinyl Chloride (PVC

c.) Rigid Pipe - Reinforced Concrete Pipe (RCP)

G. Detectable Underground Marking Tape

1.) Marking tape materials shall meet the requirements specified for sanitary sewers.

H. Clean Outs

1.) Storm sewer cleanout materials shall meet the requirements specified for sanitary cleanouts except that covers, where required in pavement, shall be stamped "Storm Sewer CO".

I. Catch Basin

1.) Materials used in the construction of catch basins to be dedicated to the Village shall conform to the requirements shown on the Standard Details and according to the following specifications.

2.) Provide precast concrete structure base, minimum interior dimension 24"x24".

Minimum depth of overall CB shall be three feet (3'). Minimum wall and base thickness shall be six-inches (6"). Precast concrete strength shall meet 4,000 psi at twenty eight (28) days. Structures shall be designed for AASHTO H-20 loading with thirty percent (30%) impact.

3.) Frame and grate shall be galvanized NYSDOT rectangular grate, bicycle proof, meeting AASHTO H-20 design as indicated on the standard detail.

4.) The interior and exterior of the catch basin shall be coated with two coats of Carboline 300M, or approved equal.

5.) Provide under drain and weep openings to permit positive drainage.

6.) All grade adjustments by manufactured rings or cast in-place formed concrete (4,000 psi), not to exceed 8-inches.

7.) Unused knockouts shall be filled with brick and mortar to full wall thickness. After initial setting, bare concrete, mortar or grout shall be waterproofed with Carboline 300M or approved equal.

J. Manholes

1.) Materials used in the construction of storm manholes to be dedicated to the Village shall conform to the requirements specified for sanitary manholes except as follows:

a.) Solid covers shall have non-penetrating pick-holes and cast lettering "STORM".
b.) Inlet covers will be permitted only where approved by the designated Village Representative.
c.) Knock-out or pipe to fit openings in lieu of pipe openings cast by the factory will be permitted for storm manholes only.
d.) A rubber gasket at pipe entry connections is not required. Pipe entry joints may be sealed with brick and mortar and sealed with non-shrink grout of sufficient quantity to completely fill the joint both inside and outside. After initial setting, bare concrete, mortar or grout shall be waterproofed with Carboline 300M coating inside and outside.

K. Special Structures

1.) Detailed plans for the construction of box culverts, headwalls, bridges, erosion control structures, storm water management facility outlet structures, any necessary special manholes or catch basins, etc. shall be submitted to the Village Engineer for approval prior to construction.

4. <u>Construction</u>

A. General

1.) Refer to Standard Storm Sewer Details.

2.) All work related to trench excavation, pipe bedding, and trench backfill for storm sewers and laterals shall be completed in accordance with requirements for sanitary sewers.

3.) All work related to pipe installation, joining of pipes, cleanouts, and wye branches for storm sewers and laterals shall be completed in accordance with requirements for sanitary sewers with the following exceptions:

a.) The ends of all wye branches or laterals shall be marked with a witness stake (min. 2" x 4") extending from the end of the pipe to 4 feet above existing grade, the top of which shall be painted with the appropriate colored enamel white for storm.
b.) Pipe leakage testing is not required. (Deflection and visual testing is required.)
c.) Televising and digital color video of storm sewers is not required.

4.) All work related to installation of storm manholes shall be completed in accordance with requirements for sanitary manholes with the following exceptions:

a.) Storm manhole leakage testing is not required. Acceptance of all pipe to manhole connections and manhole joints will be required by visual inspection completed by the designated Village Representative.
b.) Storm manhole inverts and benches are required unless otherwise approved by the Village Representative.

5.) Upon completion of construction of the storm sewer, including trench backfill, the Contractor shall clean and flush all pipes. All water needed to flush the sewer system shall be furnished by the Contractor. The system shall be left free of all stones, sand, silt, or mortar projects. The benches and inverts of manholes and bottoms of inlets shall have all mortar dropping chipped away to leave a smooth, clean surface. If any section of pipe cannot be flushed clean, mechanical methods shall be used to dislodge any deposits in the pipe.

6.) All materials flushed from the storm sewer shall be intercepted and removed to prevent the materials from entering the downstream existing storm sewer system or storm water management facility.

7.) Every section of pipe between manholes shall be visually checked with a bright light. If the illuminated interior of the pipe line shows poor alignment, displaced pipes, visible leaks, cracked or broken pipe or any other defects, the defects shall be corrected.

8.) Deflection tests shall be performed on all flexible twelve inch (12”) diameters and under storm sewer piping (not including laterals). The test shall be conducted after the final backfill has been in place at least thirty (30) days. No pipe shall exceed a deflection of five percent (5%). Deflection tests are to be run using a rigid ball or mandrel, having a diameter of not less than ninety five (95%) of the inside diameter of the pipe. The test shall be performed without

mechanical pulling devices. If deflection exceeds 5 percent, replacement of the defective sewer will be required.

B. Catch Basin Installation

1.) Install catch basin structures and associated pipelines to the required lines and grades indicated on the approved plans and according to the specifications described below, or as directed by the designated Village Representative.

2.) Verify that excavation is in the proper location, that pipes have been installed at the correct elevations and that the subgrade has been properly prepared. Foundations shall not be placed upon frozen or muddy subgrade.

3.) The precast catch basins shall be placed on a minimum six inch (6") depth sub-base of compacted 50-50 mix of NYSDOT #1 and #2 crushed stone, at least four inch (4") wider than the outside dimensions of the catch basin walls.

4.) The catch basin shall be provided with 50-50 mix of NYSDOT #l and #2 crushed stone around the exterior, extending from the bottom of the catch basin to the top of the precast wall on a 2-on-l slope. This stone shall be compacted before placing of the concrete apron.

5.) For catch basins located in concrete gutters complete work as shown on the standard concrete gutter inlet detail. Before placing the concrete apron, the catch basin frame shall be adjusted on the catch basin walls, to allow for a 1-1/2 inch drop from invert of gutter to top of grate (except under special conditions as approved by the designate Village Representative). This drop shall be formed gradually in the invert. The apron shall have “dummy” joints from all corners of the frame as per the standard detail. The catch basin frame shall be set in the concrete for the roadside gutter.

6.) Fill bottom of catch basin to eliminate sump and provide positive drainage. Clean and flush catch basins. Structures shall be left free of all stones, sand, silt, or mortar projects. All mortar droppings shall be chipped away to leave a smooth, clean surface.

3.6 GRADING, SEEDING AND RELATED WORK

1. The Developer shall generally maintain his tract in a neat and nuisance free condition. Excavations and trenches shall not be left open for prolonged periods or be allowed to fill with water and thereby create a hazard.

2. 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 top soiled and seeded with perennial rye grass.

3. Vacant, unsold lots shall not be used as a depository for scrap lumber, excess earth, or trash.

4. Seeding and Topsoil: All disturbed open and wooded areas, on slopes of less than one (1) vertical to four (4) horizontal, shall be treated with a mixture of fertilizer and seed by the hydraulic method. Seed shall be applied at the rate of 100 pounds of pure live seed per acre. Fertilizer shall be applied at the rate of 800 pounds per acre. Topsoil shall be suitable for use in seeding and shall contain no material toxic to plant growth. It shall be placed to a depth of four inch (4") compacted thickness.

   A. Seed Mix: Weight of Pure Live Seed

Red Fescue (Festuca rubra)	40
Kentucky Bluegrass (Poa pratensis)	20
Common Ryegrass (Domestic) (Lolium perenne) & (Loliurn multiflorum)	40

   B. Fertilizer Mixture: Use 1/2 by weight of Type 1 and Type 2 100 lbs.

Type 1	10-6-4
Type 2	Urernite, Nitroform or florden's 38, or equal

   C. Mulching: Within forty-eight (48) hours after seeding, a mulch of clean new crop wheat straw shall be placed uniformly in a continuous blanket at a rate of not less than two (2) tons per acre. A mechanical blower may be used to apply mulch provided the machine has been specifically designed and approved for the purpose. Machines which cut mulch into short pieces shall not be permitted.

5. Grass and Planted Areas: Grass and Planted areas shall be designated as all other areas not specified as Wooded or Open Areas and including Lawn Areas. All work in connection with the restoration of grass and planted areas shall be performed by an experienced landscape contractor. Name of the landscape subcontractor, together with other pertinent information as requested shall be submitted to the Village Engineer for approval.

6. Topsoil: Topsoil shall be used for the top four inches (4") of backfill for trenches and excavations in grass and planted areas unless otherwise required by

   A. Easement Agreements. Topsoil shall be approved topsoil obtained from excavation operations or, if insufficient suitable material is available, it shall be imported by the Contractor.

   B. Imported topsoil shall contain no admixture of refuse or any material toxic to plant growth and shall be reasonably tree from subsoil, stumps, roots, brush, stones, clay lumps or similar objects larger than two inch (2") in greatest diameter. The topsoil shall have an acidity range between pH 5.0 and pH 7.0. Organic content shall be not less than three percent (3%) nor more than twenty percent (20%). There shall not be less than twenty percent (20%) nor more than eighty percent (80%) passing the 200 mesh sieve. If requested, the Contractor shall furnish a certified analysis made by an acceptable testing agency.

   C. After topsoil is spread, all large, stiff clods and Stones two inches (2") or more in greatest dimension, roots and other debris shall be cleared and disposed of off-site

so that the finished surfaces shall be acceptable for seeding operations. In areas to be sodded, topsoil shall be graded to such elevations that when sod is placed, it shall be at the same elevation as the adjacent grassed areas.

7. Liming, Fertilizing and Seeding

   A. All areas to be seeded, shall be disced or otherwise loosened to a depth of two inch (2"), and shall be raked to true lines, free of all unsightly variations, bumps, ridges or depressions. All sticks, stones, roots or other objectionable materials which might interfere with the formation of a finely pulverized seed bed shall be removed from the soil.

   B. Topsoil areas shall be rolled with lawn roller and all low spots leveled up. Based on a minimum of three representative soil samples, apply raw ground agricultural limestone containing not less than ninety percent (90%) of calcium carbonate by approved equipment, at a rate to provide a pH in the range of 5.0 to 7.0. Limestone shall be worked lightly into the top two inch (2") of the soil.

   C. Commercial fertilizer, 10-6-4, shall be applied by approved equipment at the rate of twenty five (25) pounds per one thousand (1,000) square feet and worked lightly into the top two inch (2") of the soil.

   D. Seed of the mix specified below shall be sowed with approved equipment at a rate of five (5) pounds per one thousand (1,000) square feet. After seeding, the surface shall be evenly raked with a fine-tooth rake and rolled with an approved roller, weighing approximately five hundred (500) pounds. All seeding work shall be done between April 15 and June 15 or between August 20 and October 15, and the Contractor shall return to the site if necessary to meet this requirement.

   E. The seed shall be fresh, re-cleaned seed of the latest crop, mixed in the following proportions by weight, and meeting the following standards of pure live seed content. The tolerance for P.L.S. (purity x germination) shall be those as tabulated in the United States Department of Agriculture Bulletin No. 480.

   F. A mulch of clean new crap wheat straw shall be placed uniformly in a continuous blanket to provide a cover of three inch (3”) loose depth. Straw shall be of such thickness that it can be left in place during cutting operations.

8. Steep Sloped Areas

   A. All disturbed areas having a slope of one (1) vertical to four (4) horizontal or greater shall be re-graded as required to match existing adjacent surfaces and planted with crown vetch.

9. Crown Vetch seed Mix

	Proportion by Weight	Furity	Germination
Coronilla varia Crown vetch (Penngift)	1/3	95%	80%
Festuca Rubra, va. "Pennlawn" Penniawn Creeping fled Fescue	1/3	95%	85%
Lolium multiflorum Rye Grass, domestic	1/3	98%	90%

Weed content shall not exceed one-half All seed shall be "Certified Blue Tag" or approved equal.

10. Procedure

A. The grading of areas shall include the removal of loose or unstable stones, rock or other debris. Piles of soil or other material shall be leveled to fill gullies, pits and ruts and to secure a smooth mulching bed free from local humps, ridges, or depressions.

B. All disturbed areas shall be treated with a mixture of fertilizer, lime and seed by the hydraulic method. On the areas apply the following quantities per acre, measured on basis of true slope face:

	Per 1000 SF	Per Acre
Water, gallons	25	1,000
Seed mixture, pounds	1-1/2	60
Limestone, pounds	70	3,000
Fertilizer mix, pounds	25	1,000
Fertilizer Mixture:	Use 1/2 by weight of Type 1 and Type 2	
Type 1	5-10-10	
Type 2	Uremite or Mitroform or Borden~s 38 or equal	

C. Mulch shall consist of timothy hay, mixed clover and timothy hay, natice or agricultural grasses, wheat or oats straw. Salt hay or other saline grasses are not acceptable. Material shall be well seasoned before baling and shall contain less than twenty percent (20%) moisture by weight. It shall be free from mature seed-bearing stalks or roots *of* prohibited or noxious weeds. In addition, the mulch shall not contain the stems of tobacco, soybeans, and other coarse or woody materials.

D. Innoculant for treating leguminous seeds shall be a pure culture of nitrogen-fixing bacteria selected for maximum vitality and the ability to transform nitrogen from the air into soluble nitrates and deposit them in the soil. Innoculants shall consist of pure bread cultures and shall not be used later than the date indicated on the container or specified. Apply at three times normal rate recommended for hand application of seed. Keep innoculant cool until time of use.

E. Asphalt emulsion shall consist of refined petroleum asphalt emulsified in alkaline water without the use of clay, starch, or like deleterious substances, and at more than 0.75 percent of saponifiable acids. It shall be of fluid consistency suitable for spray application with or without dilution with water. It shall contain no petroleum solvents or other diluting agents known to be toxic to plant life.

F. Mulch, exclusive of straw, shall be placed over slope areas after seeding has been performed. It shall be placed uniformly in a continuous blanket at the rate of two (2) tons per acre. Asphaltic emulsion as specified shall be used uniformly over and through the mulch at a rate not less than 100 gallons per acre. All mulch shall be placed within forty-eight (48) hours after seeding or planting.

A mechanical blower may be used to apply mulch material, provided the machine has been specifically designed and approved for this purpose. Machines which cut mulch into short pieces shall not be permitted.

11. Maintenance: The Contractor shall during the construction and prior to acceptance, properly care for all areas mulches, performing all mulching operations necessary to provide protection and establish growth on the treated areas. Mulch which becomes displaced shall be reapplied at once, together with any necessary re-liming, re-fertilizing, reseeding; all at no expense to the village. Acceptance shall be made on the basis of production of two (2) vigorous, healthy crown vetch seedlings per one (1) square yard. No cutting is required.

12. Guarantee: All work shall be guaranteed for a minimum one (1) year period from the date of initial acceptance of the work. Initial acceptance shall be made at the time that a vigorous healthy stand of grass has been established as determined by the Village Representative. During the guarantee period the Contractor shall replace, without charge, all seeding, sod and plants that are dead or are in an unhealthy or unsightly condition in the opinion of the Village Representative. Final acceptance shall be acknowledged after seeded and sodded areas and plantings have been in place for one (1) year in a vigorous healthy condition. The guarantee period shall end at that time.

3.7 TREES

1. General: The Contractor shall place trees at the locations shown on the plans and as directed by the Planning Board. Trees shall be a minimum of 1-1/2" diameter and placed nine foot (9’) inside the R.O.W. line. Spacing shall be one hundred foot (100') intervals on both sides of the R.O.W. Shade trees shall be in accordance with the approved Tree List or as required by the Planning Board. Trees shall not be planted next to fire hydrants and house laterals and services.

2. Quality: Plant material shall be in accordance with American Standard for Nursery Stock latest version and rules and grading adopted by the American Association of Nurserymen.

A. All plants shall have a normal habit of growth and shall be sound, healthy, vigorous plants with well developed root Systems. Plants shall be free of disease, insect pests, eggs or larvae.

B. Plants shall not be pruned before delivery. Trees which have a damaged or crooked leader, or multiple leaders, unless specifically specified, will be rejected. Trees with abrasion of the bark, sunscalds, disfiguring knots, or fresh cuts on limbs over 1-1/4 inches which have not completely calloused, will be rejected. plants shall be freshly dug. No heeled in plants or plants from cold storage will be accepted.

3. Size: Plants shall be measured when branches are in their normal position. Height and spread dimensions specified refer to the main body of the plant and not from branch tip to branch tip. Caliper measurement shall be taken at a point on the trunk six inch (6") above natural ground line. If a range of size is given, no plant shall be less than the minimum size and not less than fifty percent (50%) of the plants shall be as large as the upper half of the range specified. The measurements specified are the minimum size acceptable and are the measurements after pruning, where pruning is required. Plants that meet the measurements specified, but do not possess a normal balance between height and spread, shall be rejected.

4. Inspection of Plant Material: The Contractor shall notify the Village in advance when the plant material is to be delivered and shall furnish an itemized list of the actual quantity of plant material in each delivery in order to coordinate inspection at the point of delivery.

5. Digging, Wrapping and Shipping: Plants should be dug up and prepared for shipment in a manner that will not cause damage to the branches, shape and future development of the plants after replanting. Plant material labels shall be securely attached by wire to all plant material delivered to the planting sits, for the purpose of inspection and plant identification. All plant materials being transported more than ten (10) miles between grower and planting site will be covered.

6. Balled and Burlapped Plants: Plants designated "B & B" on the proposal or on any subsequent list furnished shall be adequately balled with firm natural balls of earth of diameter and depth not less than that recommended by the American Standard for Nursery Stock. Balls shall be firmly wrapped with burlap.

   All plants which are two inch (2") in caliper or over shall be drum-laced. No balled plants shall be planted if the ball is cracked or broken either before or during the process of planting.

7. Protection Against Drying: All root balls of all plants shall be adequately protected at all times from sun and from drying winds. All balled and burlapped plants which cannot be planted immediately upon delivery shall be set on the ground and shall be well protected with soil, or other acceptable material. Plants shall not remain unplanted for longer than two (2) days after delivery.

8. Planting Preparation:

   A. The Contractor shall stake out the ground locations for trees to be planted.

   B. Rock, underground construction work, tree roots or obstructions encountered in the excavation of shrub and tree pits shall be brought to the attention of the Village Representative.

   C. Work shall proceed after alternate locations have been designated or approved by the Village Representative.

   D. Notify the Village Representative in writing of all soil or drainage conditions which the Contractor considers detrimental to growth of plant material.

   E. Planting areas shall be free of debris or other de1etetious matter prior to the placement of planting soil mixture.

9. Planting: Place planting soil mixture in layers not to exceed eight inches (8") and roll or tamp to the satisfaction of the Village Representative.

   A. Plants shall be set at the same relationship to the finished grade as they bore to the ground from which they were dug. Planting soil shall be used to backfill approximately 2/3 full; Contractor shall water thoroughly before installing remainder of the planting soil to top of pit, eliminating all air pockets. Contractor shall not backfill beds with planting soil until approved by the Village Representative.

   B. Contractor shall set plant stock plumb and brace rigidly in position until the planting soil has been tamped solidly around the ball and roots.

   C. Ropes or strings shall be cut from top of ball after plant has been set and burlap or cloth wrapping shall be left intact around balls. Contractor shall turn under and bury portions of burlap exposed at top of ball.

   D. A four (4) inch deep saucer shall be formed around tree pits.

   E. Contractor shall mulch all planting areas and beds two (2) inches deep immediately after planting and shrub planting.

   F. All plants shall be watered immediately after planting.

   G. Planting areas shall be reshaped to conform to specified grades after full settlement has occurred and mulch shall be restored.

   H. Trunks of deciduous trees of 1-1/2 inch caliper or more shall be wrapped with a spiral wrapping minimum height of third branches or 2/3 height of tree, whichever is highest. Wrap from top down, and tie wrapping securely in place.

   I. All trees shall be guyed and staked immediately after planting. Plants shall stand plumb after guying.

J. The plants shall be pruned only at time of planting and in accordance with standard horticultural practice to preserve the natural character of the plant. Pruning shall be done under the supervision of the Village Representative. Pruning and trimming shall remove all dead wood, suckers and broken or badly bruised branches using only clean and sharp tools.

K. The Contractor shall at the completion of his operations remove all rubbish, dirt, rejected materials no longer necessary for the completion of the remaining work.

4. Replacement

A. The Contractor shall replace, without cost to the Village, and as soon as weather conditions permit and within a specified planting period, all dead plants and all plants not in rigorous, thriving condition, as determined by the village Representative. The plants shall be free of dead or dying branches and branch tips, and shall bear foliage of a normal density, size and color. Replacements shall closely match adjacent specimens of the same species. Replacements shall be subject to all requirements stated in this specification.

B. The Contractor shall make all necessary repairs done to plant replacements. Such repairs shall be done at no extra cost to the Village.

C. The Guarantee of all replacement plants shall extend for an additional period of one year from the date of their acceptance after replacement. If replacement plant material is not acceptable during or at the end of the said extended guarantee period, the village may elect subsequent replacement or credit for each item.

5. Final Inspection and Final Acceptance

A. At the end of the guarantee period, the Village Engineer shall inspect all guaranteed work for final acceptance upon written request of the Contractor. The request shall be received at least ten (10) calendar days before the anticipated date for final inspection.

B. Upon completion and re-inspection of all repairs or renewals necessary, in the judgment of the Village Engineer at that time, the Engineer shall certify in writing to the Village as to the Final Acceptance of the project.

3.8 CONCRETE SIDEWALKS

1. General

A. Concrete sidewalks with a minimum width of five feet (5') shall be installed in conjunction with all new street improvements in accordance with the Typical Road Section and shall be provided in locations where they are deemed to be appropriate and in the interest of public safety or convenience and by the Village Representative. Walks shall be required on both sides of the street. The sidewalks shall be constructed to the dimensions shown on the typical sections and at the locations shown on the approved plans.

All work shall comply with the most recent requirements of the Americans with Disabilities Act.

B. Concrete batching plants supplying concrete shall be currently approved as concrete suppliers by the New York State Department of Transportation, (NYSDOT).

2. Materials

A. Materials shall conform to the NYSDOT; Standard Specification Section 608-2 dated May 1, 2008 for Portland Cement concrete sidewalks.

B. Expansion joint material shall be pre-molded resilient joint filler meeting NYSDOT Materials specifications 705-07. The pre-molded resilient joint filler shall meet ASTM D1751, fiberboard, half inch (1/2") thick.

C. Curing and Anti-spalling Compound – ASTM C-309, Type ID or 2, Class B with minimum eighteen percent (18%) total solids content. No thinning of materials allowed.

D. Conventionally Formed Concrete - Conventionally formed concrete shall meet the requirements for NYSDOT Class D in accordance with NYSDOT Section 501 parts 501-2.02 (Class D) and 501-3 for supplying concrete and the placement thereof. All concrete shall contain a water reducing admixture meeting the requirement of NYSDOT Materials Specification 711-08 in such a quantity as to provide a minimum 10% reduction of the design water content by using a normal range water-reducer.

E. Concrete shall be fiber reinforced at a rate of 1.5 lbs of fiber per cubic yard of concrete. Fibers shall meet the requirement of NYSDOT Materials Specification 711-01.

F. All concrete shall be air-entrained. The concrete shall have minimum compression strength of 4500 psi after twenty eight (28) days.

G. The contractor shall submit for approval a design mix from the supplier for the concrete to be used for sidewalk construction. The submittals shall include product data for the fiber reinforcement, as well as any admixtures and curing compounds.

H. Material certification shall be provided from the concrete supplier stating the products conform to the appropriate NYSDOT specifications and are listed on the current approved materials list. In addition, the concrete supplier shall certify the approved fibrous concrete reinforcement in the required amount per cubic yard was added to and properly mixed into each batch of concrete delivered to the site for sidewalks.

3. Method Of Placement

A. Unless specified otherwise, all sidewalks outside of NYS right of ways shall be five inches (5”) thick, seven inches (7”) thick through driveways, and be five feet (5’) wide as shown on the standard details. Walks within NYS right of ways shall be meet NYSDOT requirements.

B. The sub-grade shall have all foreign material removed and be compacted to an even surface that is parallel to the finish grade of the sidewalk, except in the case of proximity to tree roots. The subgrade shall be compacted to a minimum density of ninety five percent (95%) (modified proctor). Any soft or weaving spots in the subgrade shall be removed and replaced with approved sub base material.

C. The sidewalk shall be placed upon a crushed stone sub base. The sub base shall be placed upon a well graded and compacted subgrade. The sub base shall be compacted to a minimum density of ninety five percent (95%) (modified proctor). The sub-base shall extend six inch (6") beyond the finished sides of the sidewalk as shown on the standard details.

D. Forms shall be full depth, set accurately to line and grade and be securely held in position. The forms shall be metal or wood sidewalk forms for straight sections and of approved material for radii. The forms shall be set to true line and grade, and shall extend for the full depth of the concrete. All forms shall be free from warp and of sufficient strength to resist the pressure of the concrete without springing. Bracing and staking of forms shall be such that the forms remain in both horizontal and vertical alignment until their removal. At least two hundred linear feet (200’) of forms shall be set and approved before concrete placement is commenced.

E. The sub base shall be wetted prior to placing the concrete for the sidewalk. Full depth expansion joint material shall be placed every twenty five feet (25') and held securely in place so that a straight joint results.

F. Place the concrete in one course to full depth. Immediately after placement thoroughly compact concrete with internal mechanical vibrating equipment and supplemented by working or spading by hand in accordance with NYSDOT Section 608 Part 3.01A.

G. Only hand screeding and finishing shall be allowed. Wait until bleeding is stopped before final finishing operations. Keep surface damp but not wet between initial strike off and final finish. Only magnesium floats and trowels are allowed.

H. The concrete sidewalks shall have full depth expansion joints consisting of “Sikaflex” or equal joint material spaced at a maximum of twenty five feet (25') intervals. Expansion joint material shall also be installed around all appurtenances and/or fixed structures extending into or through the concrete sidewalk. The control joints shall be spaced at five feet (5') intervals between expansion joints for five feet (5') wide sidewalks. For sidewalks wider than five feet (5'), expansion and control joints shall be provided as ordered by the Village.

I. Control joints shall be tooled by use of an approved tool to a minimum depth of one-quarter the total slab thickness. The jointer for tooled joints shall have a deep edge bit to provide the needed depth, with one quarter inch (1/4") radius. An acceptable alternative to using the deep edge jointer tool would be to score the control joints to a minimum of two inch (2") deep, using a straight edge and trowel in a “cake cutter” fashion, and finishing the joint with a shallower jointer tool. Saw cut control joints are allowed when approved by Village Representative.

J. All exposed surfaces shall be broomed. Edges and joints shall be tool finished, except as otherwise specified. All lines formed shall be true and straight. The walk surface shall have a fine broomed finish, with exposed tooled edge and joint banding, flush with broomed finish, free of all ridges.

K. Immediately after finishing and not more than thirty (30) minutes after concrete placement the finished concrete surface shall be treated with an approved clear with fugitive dye membrane curing and sealing compound. Curing shall be completed in accordance with NYSDOT Section 608 Part 3.01D except that saw cutting is not permitted and alternative curing methods shall be approved by the Village Representative. The contractor shall submit data to the Village on the type of chemical to be used at least ten (10) days prior to starting the sidewalk placement.

L. No concrete shall be placed before April 20th, or after October 31st. No concrete shall be placed when the outside air and surface temperature is less than 40º F (4º C). The sub base material shall not have any snow, ice, frost or standing water on its surface. Do not place concrete in the rain. The Village Representative shall make the final decision regarding concrete placement at any given time. Concrete placement without Village approval shall be rejected.

4. Convenience of Property Owners

A. The Developer's contractor shall provide an access ramp over the walk for each establishment until concrete is sufficiently hardened. Where a commercial business has more than one driveway, only one drive may be disturbed at any one time.

5. Concrete Testing

A. The Developer’s design professional and/or contractor shall be responsible to complete concrete compressive strength testing by an independent testing agency approved by the Village to ensure the minimum strength requirements are met. The approved testing agency shall cast the concrete test cylinders during concrete placement. Copies of the test reports shall be submitted to the Village Engineer.

B. As a minimum, testing frequency shall be as follows:

1.) Compression Test Specimen: ASTM C 31; One composite sample (minimum of 4 cylinders) for each day's pour of each concrete mix exceeding 5 cu. yd, but less than 25 cu. yd., plus one set of four standard cylinders for each additional 50 cu. yd. or fraction thereof. Mold and store cylinders for laboratory cured test specimens except when field-cure test specimens are required. One additional test cylinder will be taken during cold weather concreting, cured on job site under same conditions as concrete it represents.

2.) Compressive Strength Tests: ASTM C 39; one set for each 25 cu. yds. or fraction thereof, of each concrete class placed in any one day; one specimen tested at seven days, two specimens tested at 28 days, and one specimen held for testing at 56 days if needed.

3.) When frequency of testing will provide less than five strength tests for a given class of concrete, conduct testing from at least five randomly selected batches or from each batch if fewer than five are used.

4.) When strength of field-cure cylinders is less than eighty five percent (85%) of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.

5.) Strength level of concrete will be considered satisfactory if averages of sets of two consecutive strength test results equal or exceed specified compressive strength, and no individual strength test result falls below specified compressive by more than 500 psi.

C. The approved testing agency shall also conduct slump and air entrainment testing, as well as monitor surface and ambient air temperatures during concrete placement. Any batch of concrete that does not fall within the specified ranges shall be rejected and removed from the site of work. Concrete placed from the rejected batch shall be removed and reconstructed. As a minimum, testing frequency shall be as follows:

1.) Slump: ASTM C 143; one test for each concrete load at point of discharge; and one test for each set of compressive strength test specimens.

2.) Air Content: ASTM C 231 pressure for normal weight concrete; one for each set of compressive strength test specimens.

3.) Concrete Temperature: Test hourly when air temperature is 40º F (4º C) and below, and when 80º F (27º C) and above; and each time a set of compression test specimens are made.

4.) Batching: All concrete shall be batched from a NYSDOT accepted automated plant. Batch plant deliveries shall be accompanied with a ticket showing weights of ingredients in loads. Provide the Village Representative or Village Engineer a copy of the ticket at time of delivery.

6. Tree Roots In Proximity To Sidewalk Construction

A. Tree root cutting shall be conducted with sharp cutting tools. Exposed tree roots are to be immediately covered with wet burlap and re-buried as soon as possible. The roots shall be trimmed neat and clean, with appropriate equipment suited to the task. Roots shall not be “trimmed” using backhoe equipment, or any other equipment that will split the root or leave jagged edges.

B. Sidewalks flags within ten (10’) feet of the trunk of trees shall be removed by use of hand tools only. Roots within this same area shall be cut using hand tools.

C. Where extensive cutting of tree root system has occurred, the contractor shall insure the tree root system receives one-half to one inch (1/2” – 1”) of water over the entire tree canopy area at least once per week for the duration of the project.

D. Tree roots less than two inch (2”) in diameter in the walk area shall be removed to a depth of twelve inch (12") below finished grade of the new walk, and no farther than five inch (5") from the edge of the new walk.

E. When replacing walks over tree roots that are greater than two inch (2”) in diameter, the contractor shall construct a thin form walk, four inch (4”) minimum thickness, as ordered by the Village Representative.

F. Root control fabric shall be installed adjacent to the sidewalk for tree roots which are located between the walks and the street.

7. Detectable Warning Surface

A. Scope of Work - This work shall consist of furnishing and installing a detectable warning surface on sidewalk curb ramps or other locations as indicated on the plans. The detectable warning surface shall meet the dimensional details and other requirements as noted on the standard details.

B. Materials

1.) All detectable warning systems shall meet the following color and friction requirements:

2.) The color of the detectable warning surface shall be approved by the Village Representative and in accordance with Federal Standard 595B #36081. The color of the constructed detectable warning surfaces shall be uniform over the entire surface and throughout the thickness of the material.

3.) The friction characteristics of completed detectable warning surfaces shall be approximately the same as the adjoining sidewalk or sidewalk curb ramp surfaces as determined by the Village Representative.

C. Systems

1.) Stamped Concrete Detectable Warning Systems: Stamped or imprinted concrete detectable warning systems shall comply with the Class D concrete with fibers as utilized for sidewalks. Imprinting tools shall be capable of imprinting the concrete surface with a uniform and aligned pattern meeting the required dimensions on sidewalk curb ramps and other surfaces.

The color shall be uniformly incorporated throughout the concrete mix, or incorporated into the concrete surface immediately prior to stamping the detectable warnings.

2.) Surface-Applied Detectable Warning Systems: Surface-applied detectable warning systems will not be permitted.

3.) Embedded Detectable Warning Systems: Embedded detectable warning systems meeting the requirements of NYSDOT Materials Section 726-02 will be considered on a case by case basis. Setting bed material and/or surface preparation materials shall be in accordance with the manufacturer's recommendations. Color shall be incorporated into the concrete during pre-casting.

4.) The Developer shall submit for review by the Village Representative at the time of site plan review the following:

a.) Product data for the detectable warning surface material, and all associated materials
b.) Preparation requirements and installation instructions including equipment required
c.) Name(s) of suppliers
d.) locations with references of previous installations where systems has been satisfactorily used for roadway, sidewalk curb ramp, path or exterior floor applications in high pedestrian use locations, under weather conditions similar to those experienced in New York State, for a minimum period of five (5) years.

5.) The Village Representative's decision will be binding on the Developer.

D. Requirements

1.) All detectable warning systems shall meet the following requirements:

a.) The contractor installing/placing the detectable warning systems shall have a minimum of five years experience successfully completing similar installations.
b.) Prior to the start of work, the Developer’s contractor shall submit qualifications data including project list identifying projects that meet the minimum experience requirements with names and telephone numbers of references for projects.

c.) The Contractor shall follow all applicable suppliers and manufacturer's requirements for environmental conditions, surface preparation, installation procedures, curing procedures, and materials compatibility.

d.) The Contractor is responsible for removing any material spatters from areas not included in the scope of the work.

e.) The Contractor shall repair any damage that should arise from the installation or the clean-up effort.

E. Construction Details

1.) Detectable warning systems selected by the Developer shall meet the following construction details:

a.) The detectable warning surface shall be installed between six inches (6”) and eight inches (8”) behind the edge of curb or drive.
b.) Domes shall be aligned on a square grid in the predominant direction of travel to permit wheels to roll between the domes.
c.) The curb, detectable warning surface and sidewalk shall be flush with the elevation of the road or drive surface.
d.) Stamped detectable warning systems: Stamped detectable warning systems shall be installed during construction of sidewalk curb ramps and other surfaces. Color hardening powder, if used to color the concrete surface shall be applied in accordance with manufacturer's recommendations.
e.) Embedded Detectable Warning Systems: If an embedded detectable warning system is approved by the Village Representative, installers of embedded detectable warning system shall be approved by the detectable warning surface material manufacturer. In no case shall the contractor permit the use of any method, or installation of any materials, by untrained personnel or non-approved installers of embedded detectable warning systems.

3.9 EARTHWORK

1. Excavating & Grading

A. The Contractor shall excavate and remove sod and topsoil at the locations shown on the plans. The excavated material hall be deposited in stock piles. The Village shall approve stock pile areas in a manner to keep the length of haul to a minimum. Proper erosion and drainage control measures shall be implemented throughout all phases of the construction work.

B. The Contractor shall excavate and deposit earth other than topsoil according to grade stakes set by the design engineer. The excavated material shall be transferred to fill areas and deposited in layers not to exceed six inch (6”) in thickness. The fill areas shall be compacted by the use of approved compaction equipment. The resulting filled ground surface shall be reasonable smooth and free of deep ruts and

holes. Compaction testing shall be performed as directed by Village Representative.

2. Ditching & Grading

   A. The Contractor shall provide and maintain slopes, crowns and ditches on all areas to be excavated or filled to insure satisfactory drainage at all times. When existing surface water drainage is interrupted then temporary drainage facilities shall be provided. Water shall not be allowed to accumulate in the trenches. Any water entering the trenches shall be drained or pumped away from the work area and directed to established drainage channels. No water shall be drained into a pipe under construction nor into any sanitary sewer line. Proper sediment control measures shall be implemented and maintained in accordance with rules and regulations.

3. Trench Excavation & Backfill

   A. Contractor shall provide and maintain proper trench protection that conforms to the Occupational Safety and Health Act and all other applicable regulations.

   B. The trench excavation shall be backfilled immediately after inspection by Village Representative. Select earth may be used outside the pavement and under drain areas. The trench excavation in all pavement areas shall be backfilled with #2 crusher run stone or with approved controlled density fill. All trenches shall be backfilled to existing grade level by the end of work day. When backfilling cannot be achieved by end of work day then all open trench areas shall be barricaded, fenced or otherwise covered with suitable materials upon permission of Village Representative. Select gravel shall be used in all under drain areas and when directed by Village Representative All backfill material shall be placed in six inch (6”) lifts and compacted to the following densities:

      1.) All proposed and existing pavement areas and within the right of way: ninety five percent (95%).

      2.) Base courses as directed by the Village.

      3.) All other areas: eighty five percent (85%).

   C. Compaction densities specified herein shall be of the percentage of the maximum density obtainable at optimum moisture content as determined and controlled in accordance with AASHO Standard T180, Method C. Field density tests shall be completed in accordance AASHO Standard T147. Each layer shall be moistened or dried as required to obtain optimum moisture content. Compaction testing shall be performed as requested by the Village Representative and administered by the design engineer.

3.10 SEDIMENT AND DUST CONTROL

1. General: Sediment Control Facilities are to be constructed as required by the Village Sediment Control Law, and to meet the objectives thereof.

2. Control: Facilities shall be constructed in accordance with the approved Sediment Control plan, Section 270 of the Village Design Criteria and Construction Specifications, such requirements as are incorporated therein by reference, good engineering and soils conservation practices, and the directives of the village Representative.

3. Sequence of Work: The construction of sediment interceptor, entrapment, and settling facilities shall be undertaken, completed, and approved prior to any other work of a construction nature taking place on the project. No other stripping of vegetation or other ground cover, earth movement, trenching or excavation, shall be commenced until, in the judgment of the village Representative the sediment control facilities are complete, adequate and operable.

4. Scope of Facilities: The facilities shall consist of sediment interceptor swales, sediment sinks/settling ponds and ancillary features required by the design and subdivision plans approval process, together with such directives as the village Representative may, from time to time, issue in order to improve performance or to adjust for changes in the developer's construction sequence or procedures, or to correct for partial or total failure or loss of efficiency of the facilities.

5. Performance:

   A. It is the intention to retain on-site all products of erosion caused by disturbance and/or removal of vegetation or other ground cover. The goal is to utilize interceptor swales at the base, or downhill limit, of disturbed areas, draining to temporary sediment sinks/settling basins, to which location the storm drain systems shall also temporarily drain until such time as the land development project has been sufficiently restored with ground cover as to prevent soil erosion.

   B. Further, the intent is to retain gross soil particles on-site, and to minimize, to the standard permitted by the state-of-the-art, the passage of colloidal particles into the natural waters of the Village. Because of the wide range of partially or totally uncontrollable variables during the land development (the worst return-frequency storm, the area of stripped ground cover, the presence or absence of completed storm drain systems, the amount of sediment stored in the sink at any given time, the variation in soil texture, or the presence of saturated or frozen ground, for example) each sediment sink/entrapment facility shall include a filter fabric barrier to protect the discharge.

   C. Performance shall be measured by the ability or the facility to pass all runoff through the filter fabric at all times during construction.

   D. It is the responsibility of the Contractor adequately to maintain the filtering integrity of the facility and to repair or replace it when required.

E. Degenerating efficiency as evidenced by holes, rips, or tears in the fabric or failure of the settling pond to drain after a storm because of filter fabric blinding or the presence of highly turbid water downstream of the fabric shall be considered cause for repair and or replacement.

6. Ancillary Sediment Control Features: In order to extend the longevity of the sediment sink facility, thereby minimizing the maintenance costs of filter fabric replacement and interim excavation of the sediment sink, the Village encourages the use of ancillary sediment control features throughout the land development project. These suggested methods are encouraged:

   A. Minimize the area of stripped ground cover at any one time.

   B. Provide hydraulically placed mulch of the “mat” type on raw areas that must be exposed for extended periods.

   C. Place firmly anchored and embedded straw bales or filter fabric barriers in areas of concentrated run-off, such as at culvert and catch basin inlets, and in swales, in an effort to reduce soil transport reaching the settling pond.

   D. Wherever possible, leave temporary buffer strips of original ground cover vegetation to act as soil migration retardant.

   E. Use "Soil Saver" jute mush along swales or other areas where runoff rates are of sufficient quantity or velocity as to cause additional erosion.

   F. Restore ground surface protection as soon as possible by utilizing hydraulically-placed-mulch.

9. Termination of Facilities

   A. The appropriate time of termination of facilities rests with the Village Representative and his decision shall be final and binding.

   B. The primary performance criteria used in making the determination will be the quality of the runoff from the development entering the sediment settling facility. When, in the judgment of the Village Representative, the ground cover in the land development project has been sufficiently restored such that runoff through the swales and storm drain system is relatively soil-free, permission may be granted to divert flow through the permanent storm water detention pond or such other drainage systems as are described on the approved plans.

   C. The Developer and his Engineer are reminded that dependence on siltation facilities from one construction season to the next greatly increases the statistical possibility of storms of greater intensity, resulting in greater runoff and erosion with subsequent possible overtaxing or failure of the facility. Therefore, expeditious restoration of ground cover, or temporary protection of soil surface is required.

8. Dust and Mud Control

   A. Recognizing that removal of vegetation during dry conditions, and periodic high winds can cause nuisance dust movement, the Contractor shall take such steps as are necessary to avoid nuisance and damage to abutting properties and occupants. Such steps may include, but not be limited to, wetting-down exposed soil areas, mulching, and re-vegetating disturbed areas.

   B. Further, the Contractor is responsible for minimizing "tracking" of mud onto existing roads. Roads shall be scraped and broomed clear of mud at the end of each working day as required.

   C. The Village reserves the right to include in the Letter of Credit an allowance to cover the estimated cost of such dust-and-mud control.

3. 11 LIGHTING

1 General: The Contractor shall provide adequate street lighting and fixtures at the locations shown on the plans and in accordance with Village Lighting Ordinance and as directed by the Village Planning Board.

2. Materials: Wiring, light poles, lights and foundations shall meet National Electric Code (NEC) and the National Board of Fire Underwriters Standards. The developer shall provide the lighting plan, design standards and specifications prepared in conjunction with the Electric Power Corporation having jurisdiction in the service area. The capital cost, maintenance and cost for electrical energy shall be described in detail as part of the lighting plan.

3. Guarantee: The developer, as part of the lighting plan, shall include a cost estimate for the proposed work and include the cost in the Letter of Credit.

4. Site Location: The lighting utility shall be located within the roadway in accordance with “Typical Road Section”.

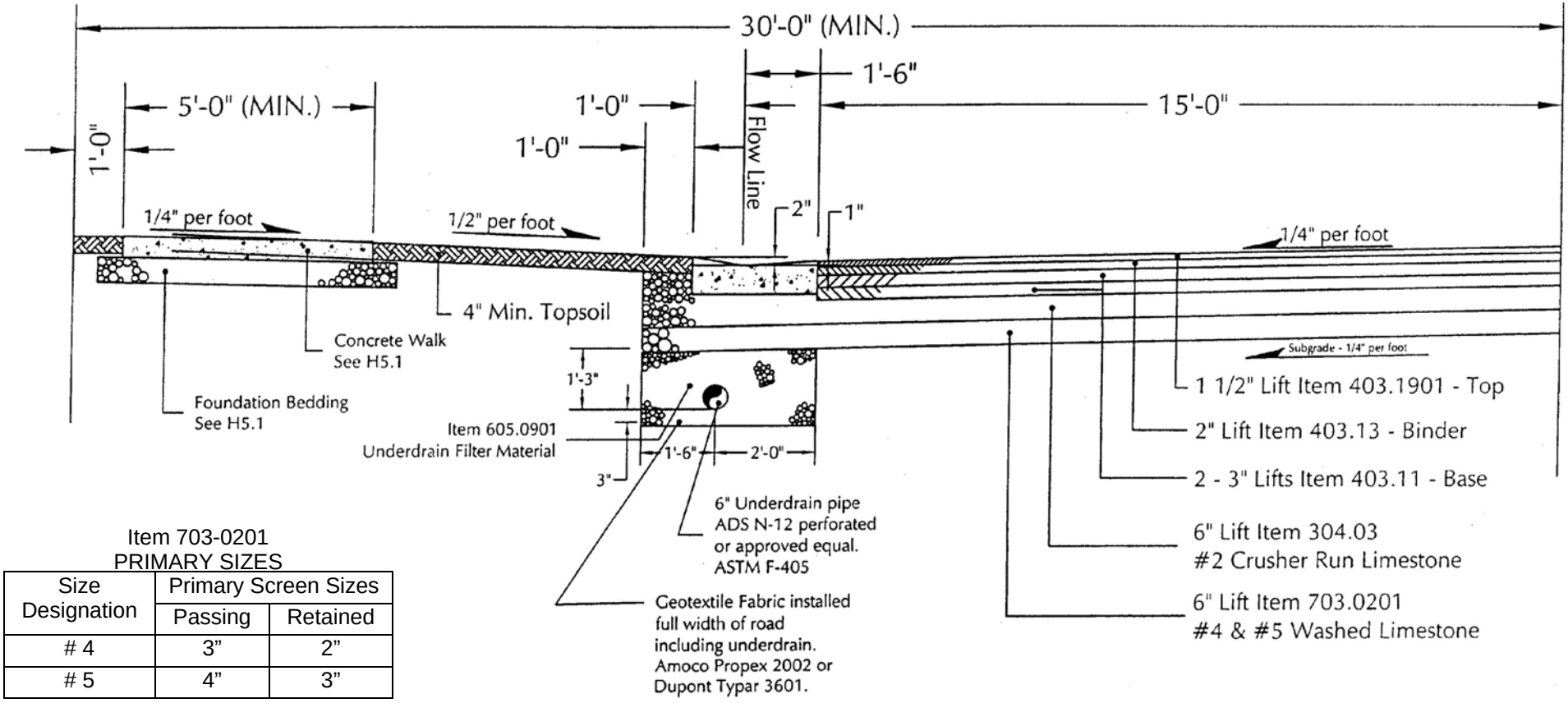
CONSTRUCTION DETAILS FOR LAND DEVELOPMENT

STANDARD SHEET

Typical 1/2 Road Section
Heavy Duty With Concrete Gutter

(N.T.S.)

R.O.W.



Item 703-0201
PRIMARY SIZES

Size Designation	Primary Screen Sizes	
	Passing	Retained
# 4	3”	2”
# 5	4”	3”

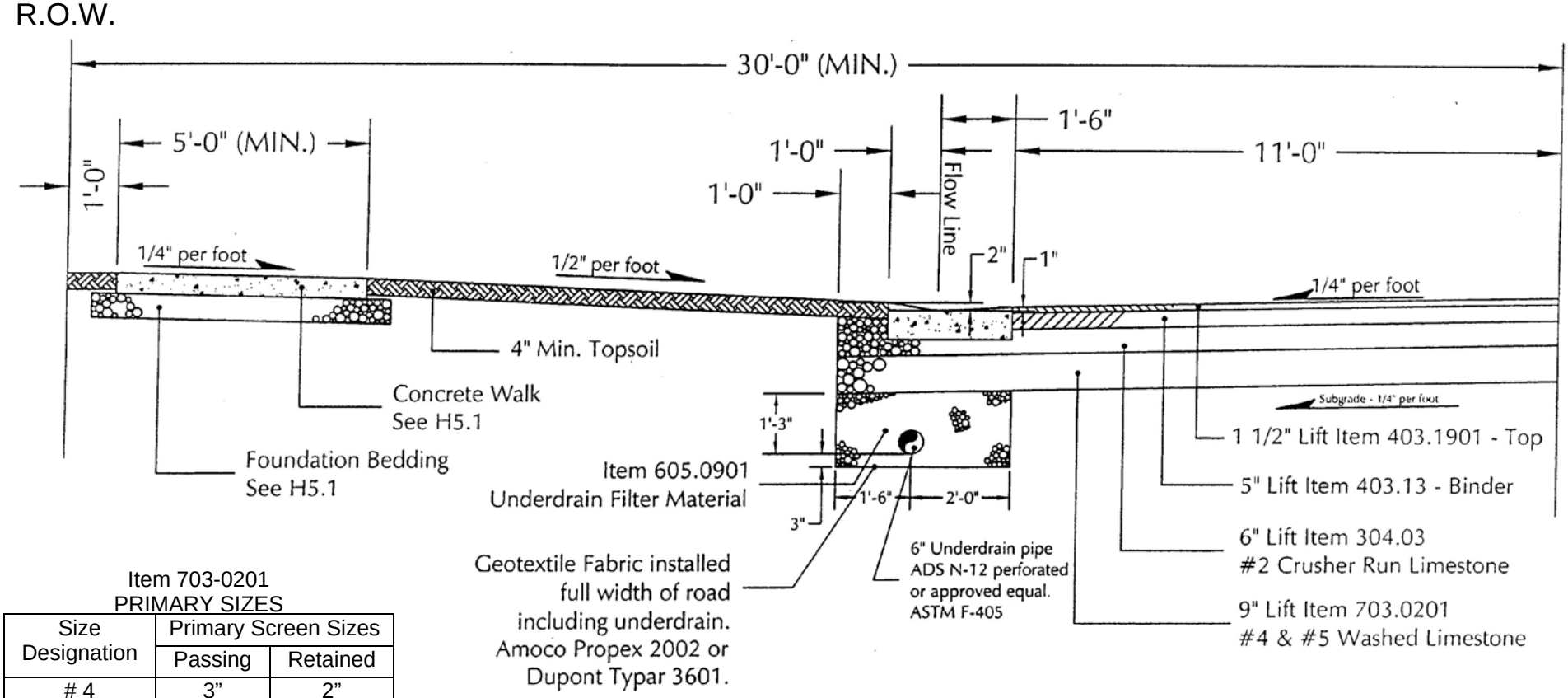
Notes:

1. If required by Town, crushed stone subbase material shall be treated with a prime coat of Item 618.10 or 618.20 prior to placing the binder.
2. Surface of the existing pavement shall be thoroughly cleaned of mud and debris and tack-coated prior to placement of true and level and/or top layers in accordance with the NYSDOT manual Sections 401-3.07 and 633.

STANDARD SHEET

Typical 1/2 Road Section
Medium Duty With Concrete Gutter

(N.T.S.)



Item 703-0201
PRIMARY SIZES

Size Designation	Primary Screen Sizes	
	Passing	Retained
# 4	3”	2”
# 5	4”	3”

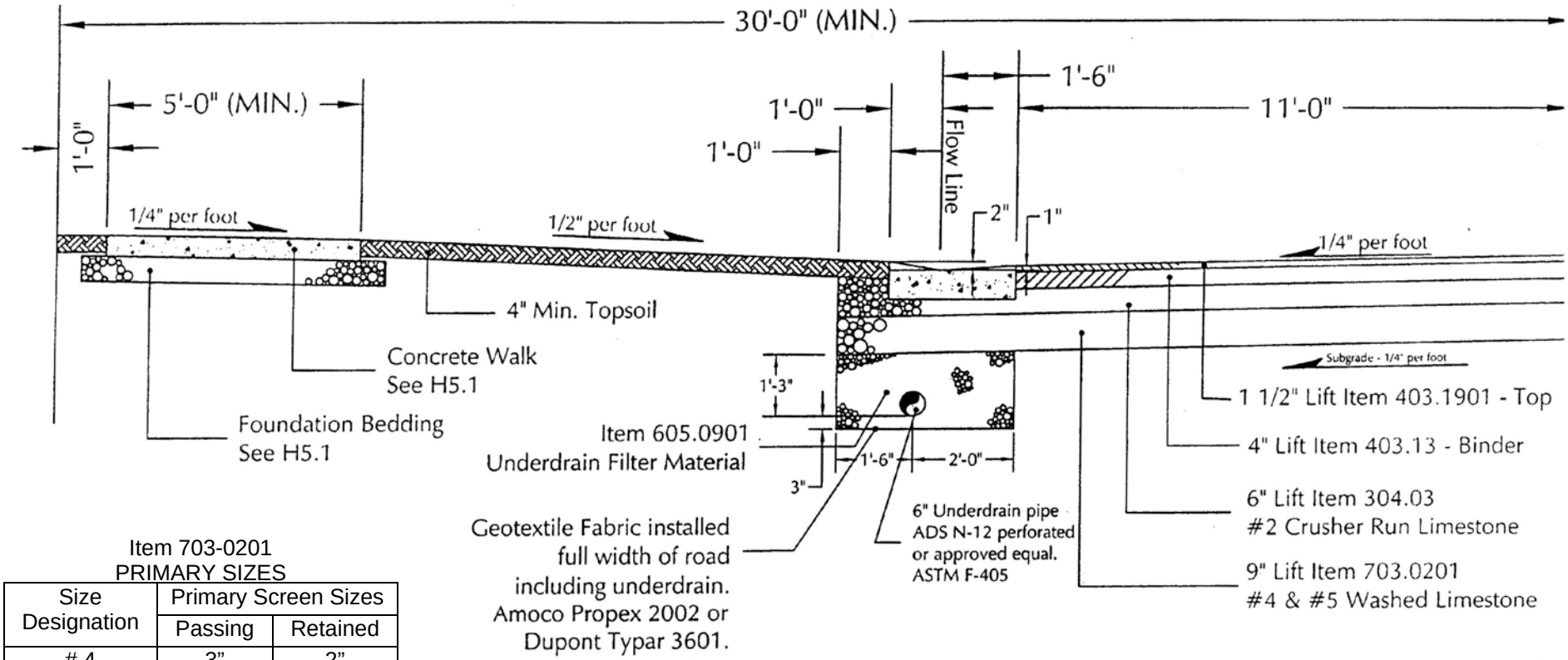
Notes:

1. If required by Town, crushed stone subbase material shall be treated with a prime coat of Item 618.10 or 618.20 prior to placing the binder.
2. Surface of the existing pavement shall be thoroughly cleaned of mud and debris and tack-coated prior to placement of true and level and/or top layers in accordance with the NYSDOT manual Sections 401-3.07 and 633.

STANDARD SHEET

Typical 1/2 Road Section
Light Duty With Concrete Gutter

(N.T.S.)



Item 703-0201
PRIMARY SIZES

Size Designation	Primary Screen Sizes	
	Passing	Retained
# 4	3”	2”
# 5	4”	3”

Notes:

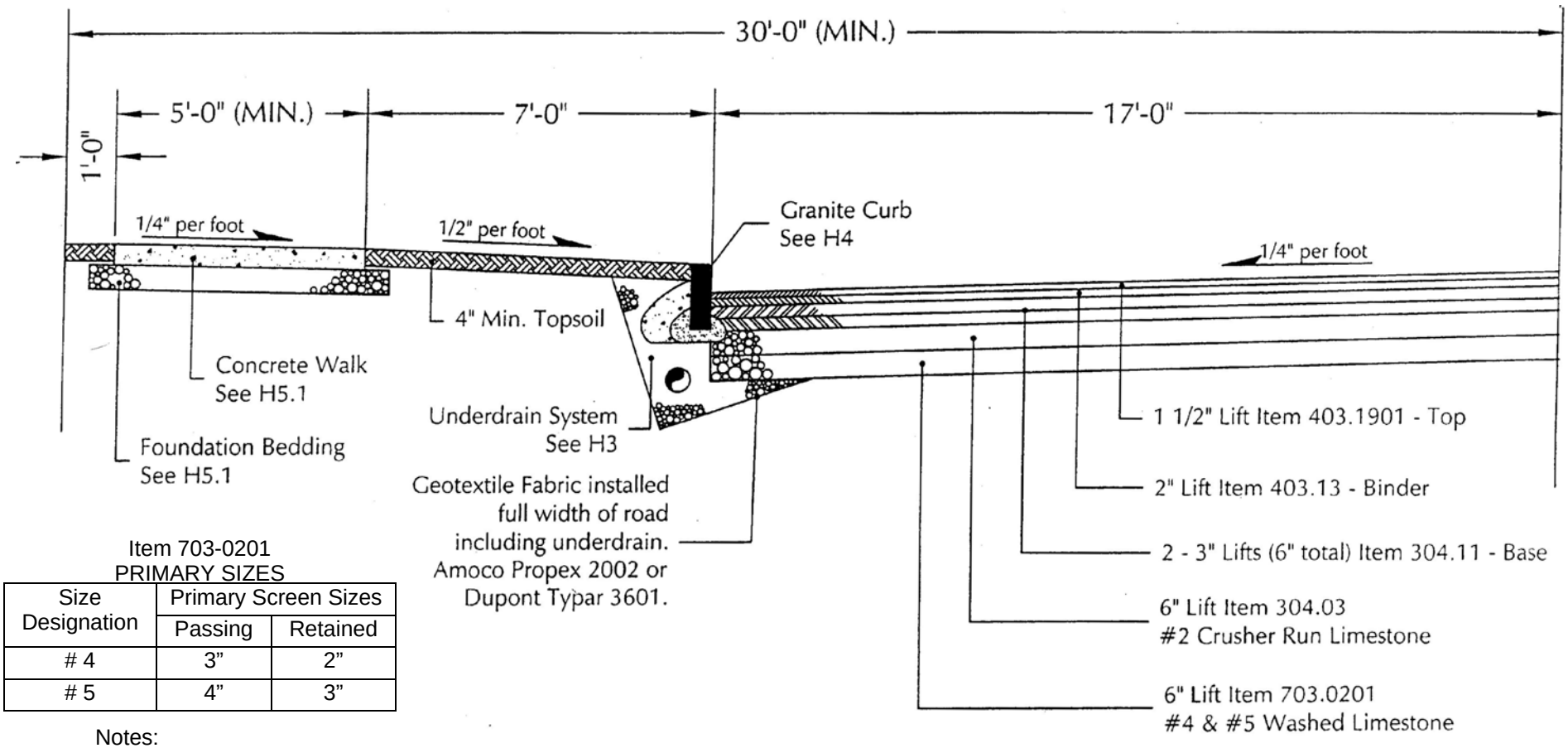
1. If required by Town, crushed stone subbase material shall be treated with a prime coat of Item 618.10 or 618.20 prior to placing the binder.
2. Surface of the existing pavement shall be thoroughly cleaned of mud and debris and tack-coated prior to placement of true and level and/or top layers in accordance with the NYSDOT manual Sections 401-3.07 and 633.

STANDARD SHEET

Typical 1/2 Road Section
Heavy Duty With Granite Curb

(N.T.S.)

R.O.W.



Item 703-0201
PRIMARY SIZES

Size Designation	Primary Screen Sizes	
	Passing	Retained
# 4	3”	2”
# 5	4”	3”

Notes:

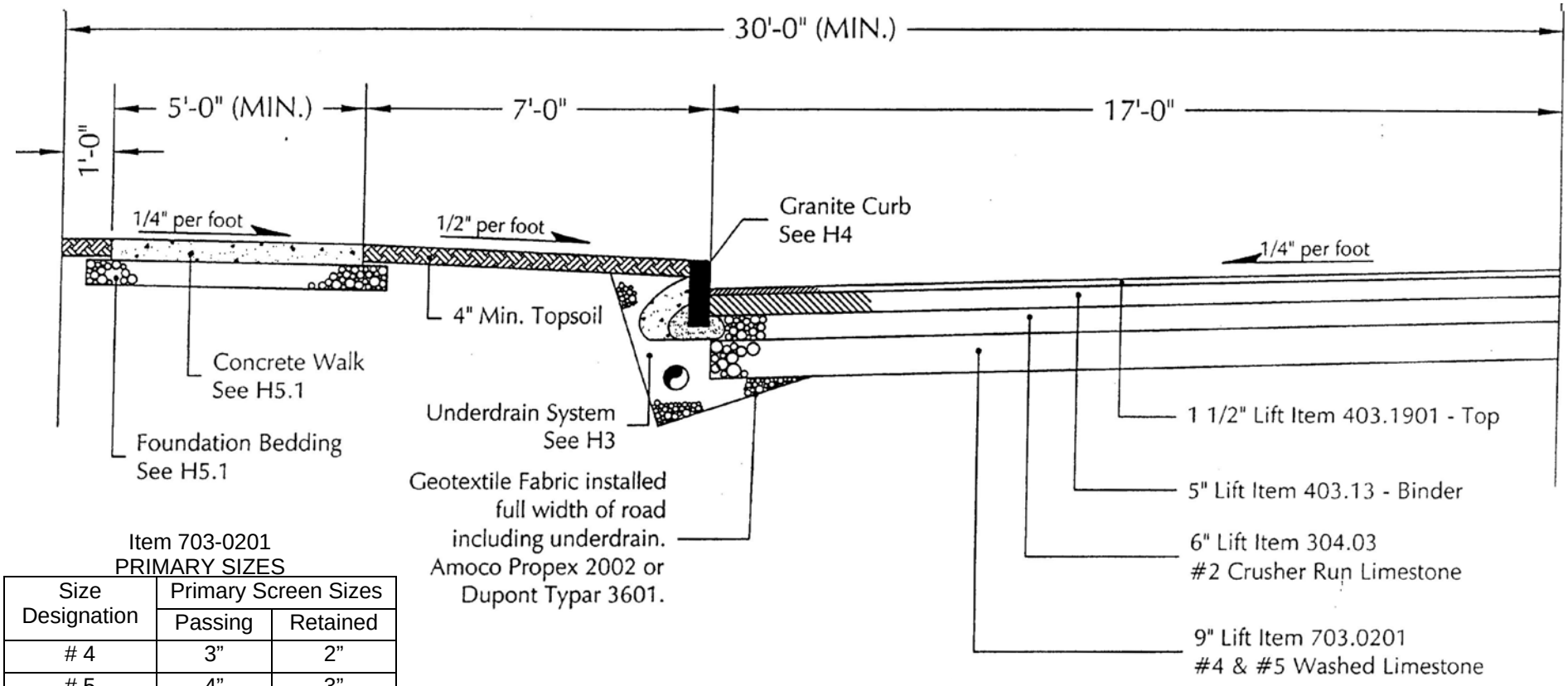
1. If required by Town, crushed stone subbase material shall be treated with a prime coat of Item 618.10 or 618.20 prior to placing the binder.
2. Surface of the existing pavement shall be thoroughly cleaned of mud and debris and tack-coated prior to placement of true and level and/or top layers in accordance with the NYSDOT manual Sections 401-3.07 and 633.

STANDARD SHEET

Typical 1/2 Road Section
Medium Duty With Granite Curb

(N.T.S.)

R.O.W.



Item 703-0201
PRIMARY SIZES

Size Designation	Primary Screen Sizes	
	Passing	Retained
# 4	3”	2”
# 5	4”	3”

Notes:

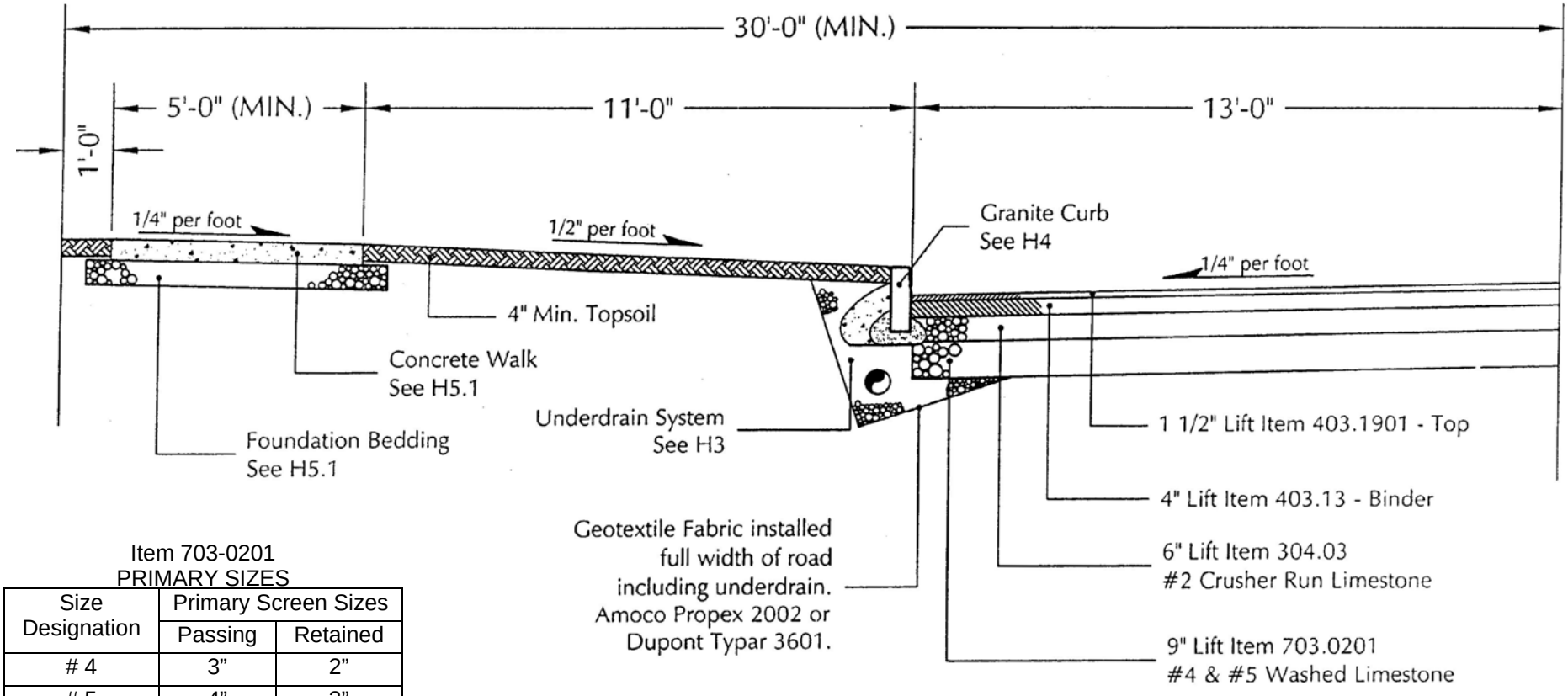
1. If required by Town, crushed stone subbase material shall be treated with a prime coat of Item 618.10 or 618.20 prior to placing the binder.
2. Surface of the existing pavement shall be thoroughly cleaned of mud and debris and tack-coated prior to placement of true and level and/or top layers in accordance with the NYSDOT manual Sections 401-3.07 and 633.

STANDARD SHEET

Typical 1/2 Road Section
Light Duty With Granite Curb

(N.T.S.)

R.O.W.



Item 703-0201
PRIMARY SIZES

Size Designation	Primary Screen Sizes	
	Passing	Retained
# 4	3”	2”
# 5	4”	3”

Notes:

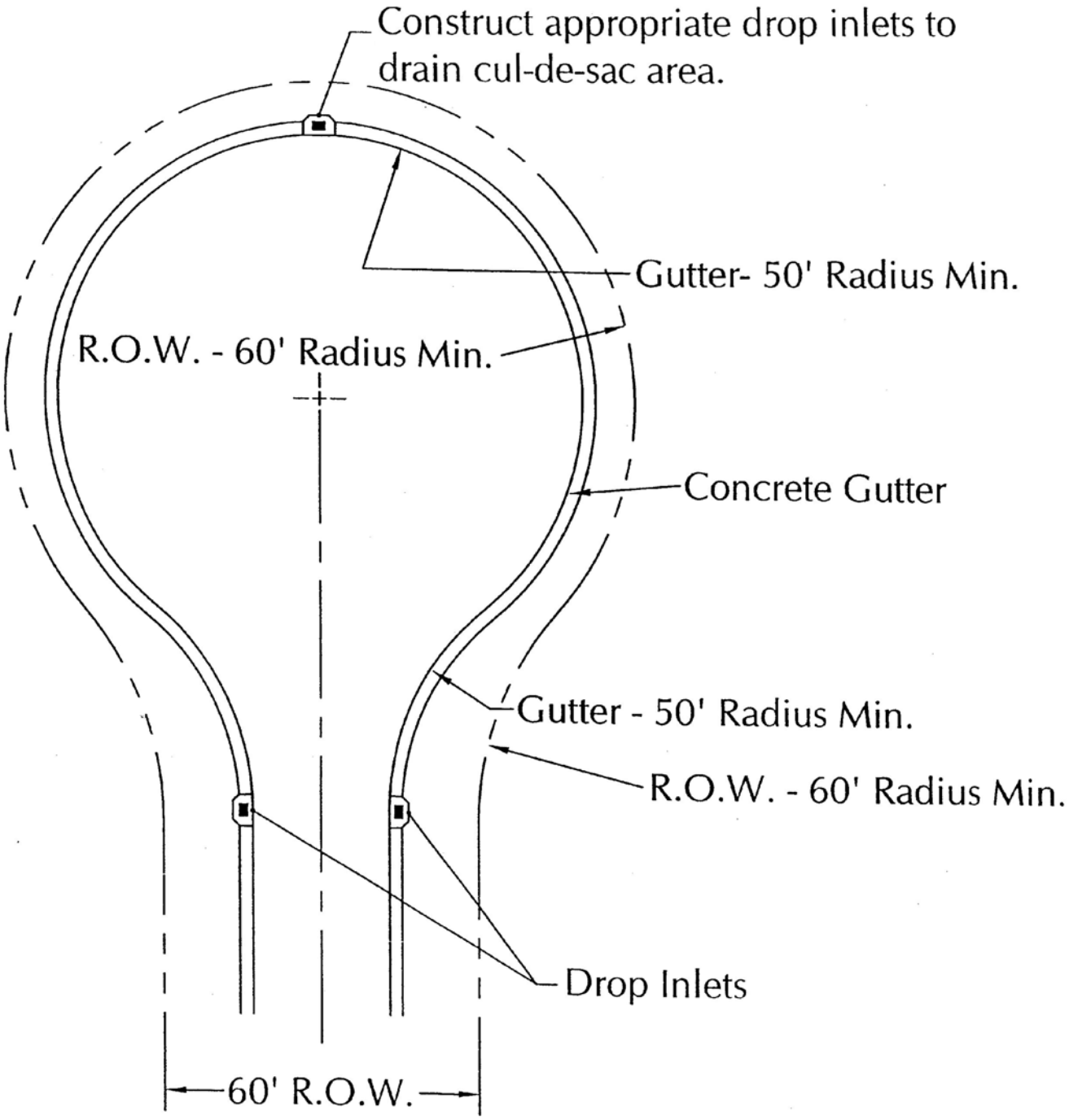
1. If required by Town, crushed stone subbase material shall be treated with a prime coat of Item 618.10 or 618.20 prior to placing the binder.
2. Surface of the existing pavement shall be thoroughly cleaned of mud and debris and tack-coated prior to placement of true and level and/or top layers in accordance with the NYSDOT manual Sections 401-3.07 and 633

STANDARD SHEET

Typical Cul-de-sac Detail

Concrete Gutters

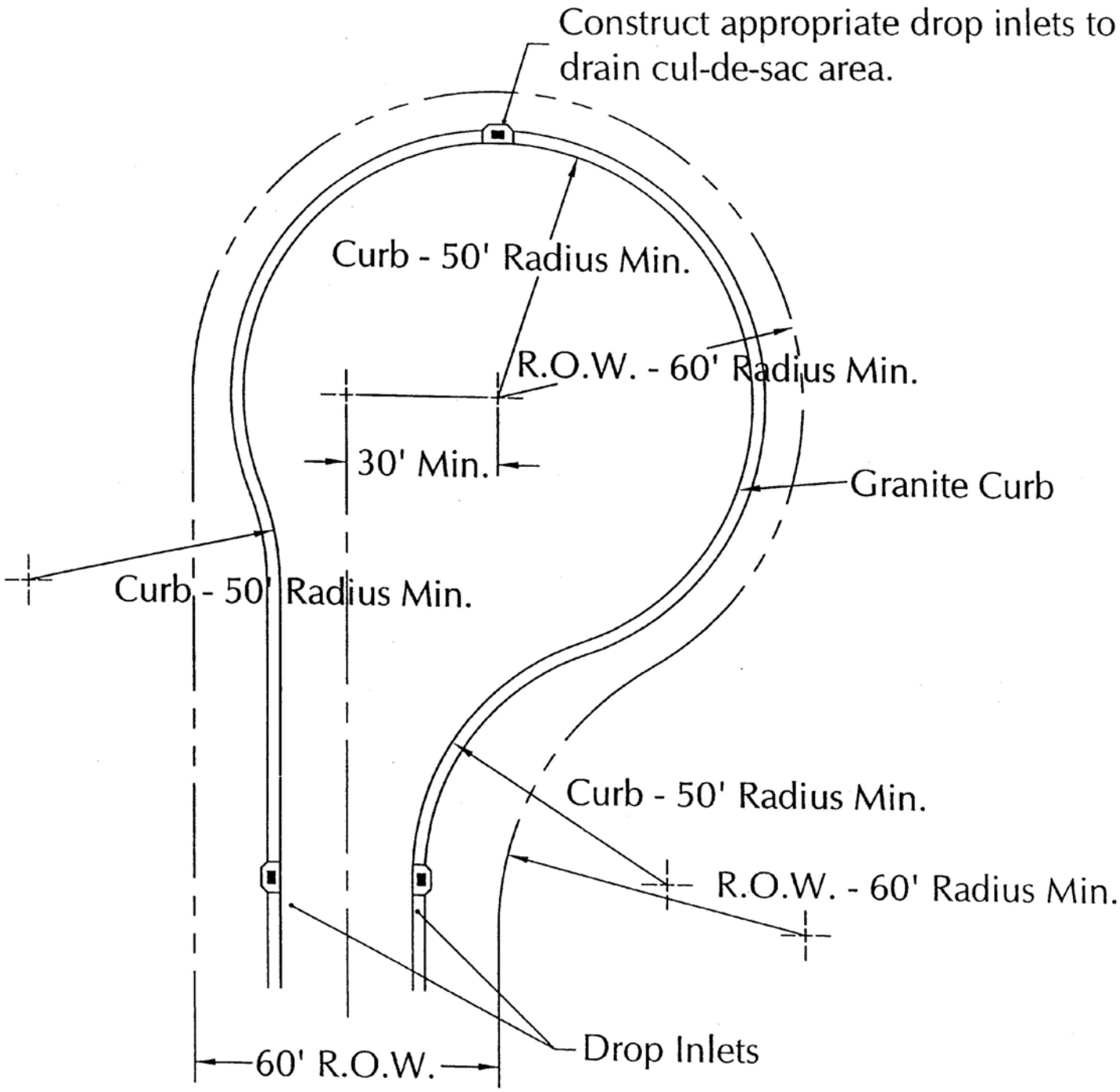
(N.T.S.)



STANDARD SHEET

Typical Offset Cul-de-sac Detail
Concrete Gutters

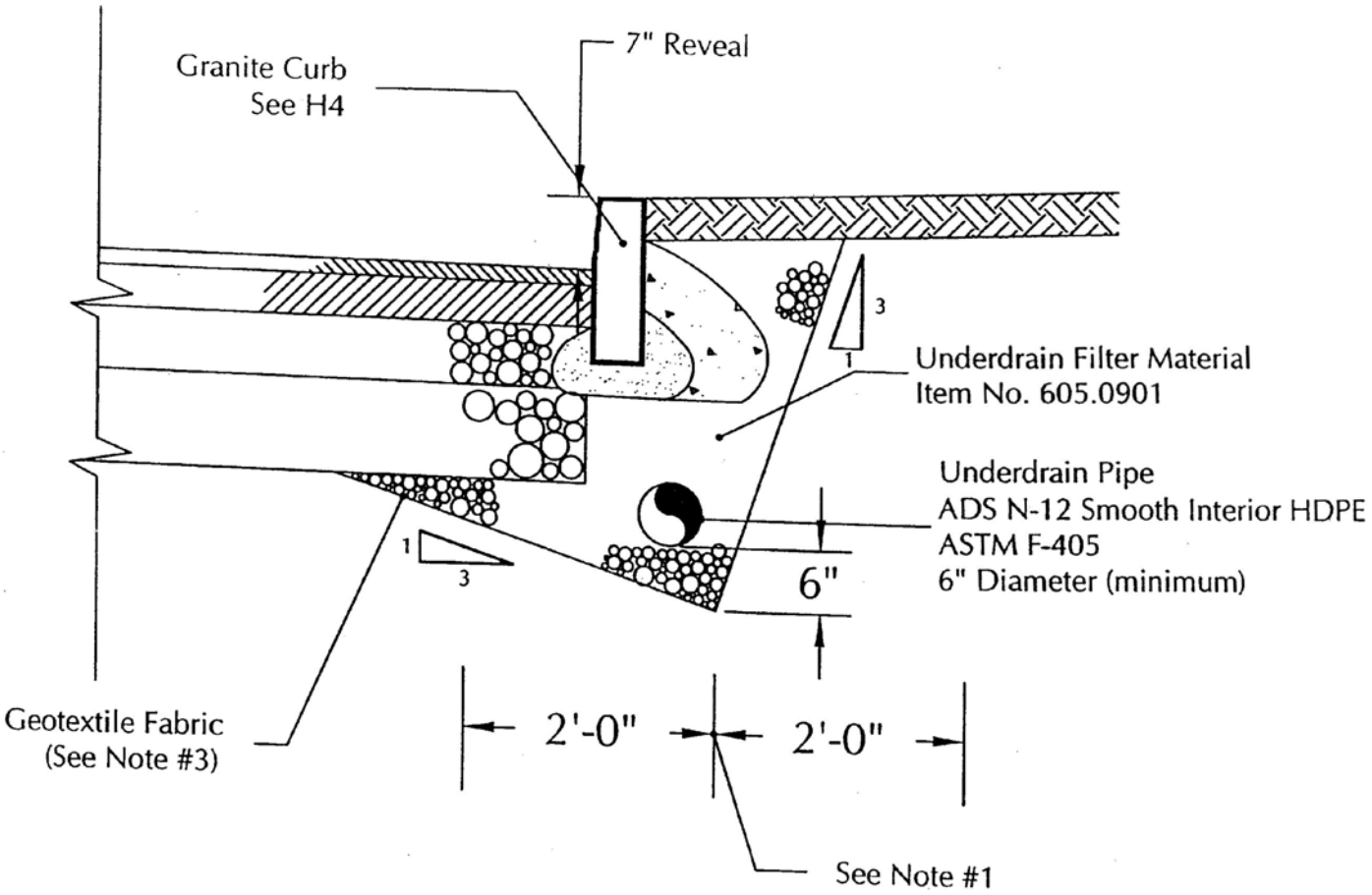
(N.T.S.)



STANDARD SHEET

Typical Underdrain Detail

(N.T.S.)



Notes:

1) After placing pipe and backfilling, the wheels or tracks of any equipment shall not operate within this area until the sub-base courses have been placed to full depth.

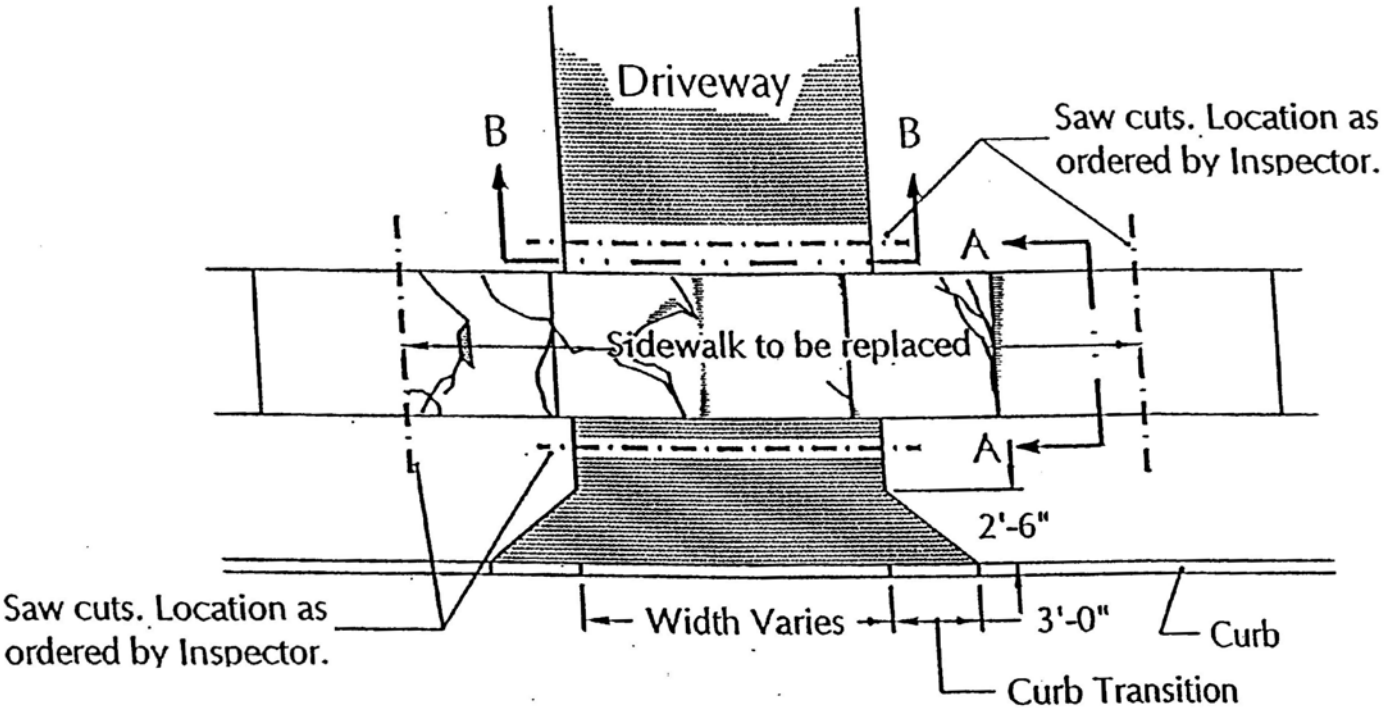
2) See Standard Sheet H4 for curb detail.

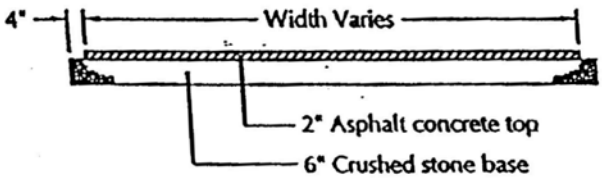
3) Geotextile Fabric – Amoco Propex 2002 or Dupont Typar 3601 shall be installed prior to stone backfill through the limits of the underdrain work.

STANDARD SHEET H-3

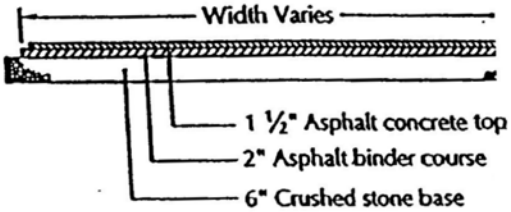
Driveway Detail

(N.T.S.)



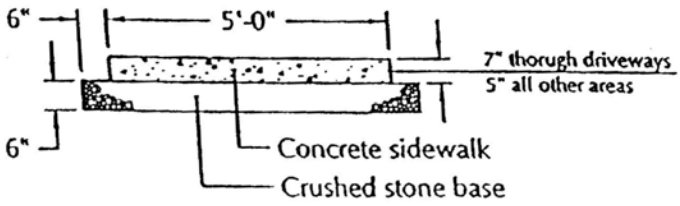


Asphalt Driveway Section
Light Duty



Asphalt Driveway Section
Medium Duty

SECTION B-B



See Typical Sidewalk Detail
Standard Sheet for details.

NOTES:

1) Heavy duty driveways will require special design approval prior to installation.

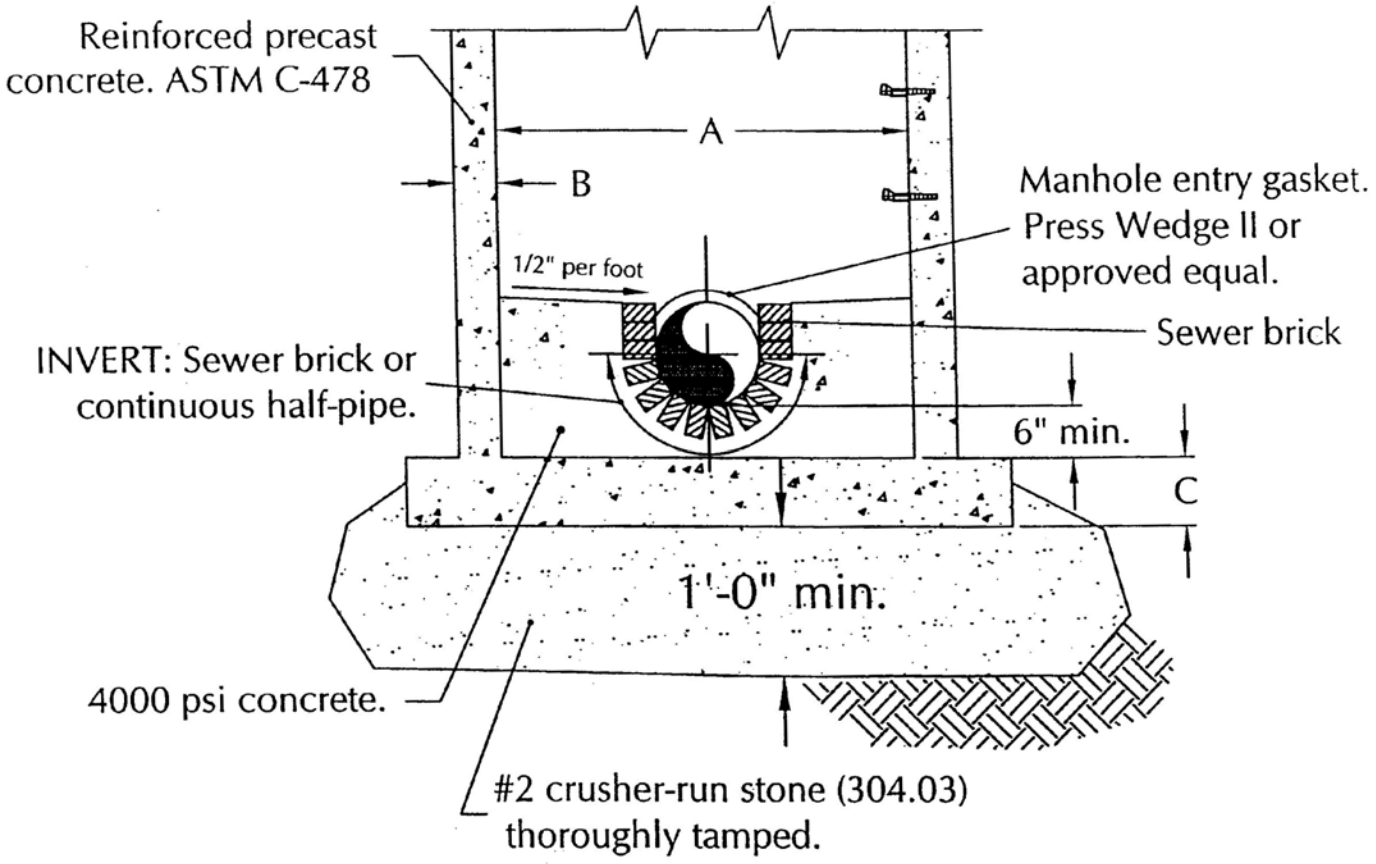
2) Gravel base shall be placed where fill is required to obtain proper subgrade elevation, to replace unsuitable subgrade material, or to the dimensions shown above.

SECTION A-A

STANDARD SHEET

Monolithic Manhole Base

(N.T.S.)



DIMENSIONS

A	4’-0”	5’-0”
B	5”	6”
C	6”	8”

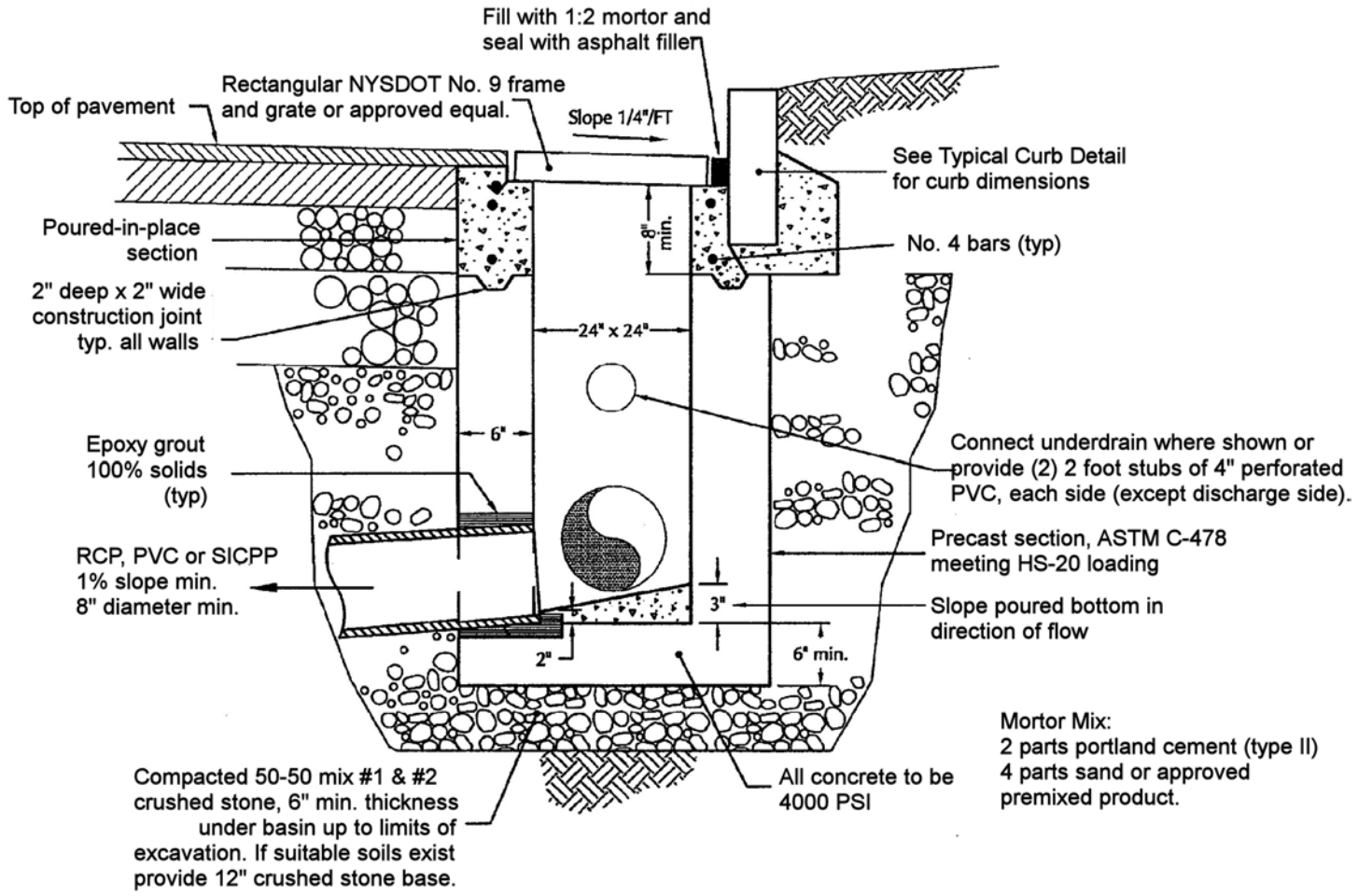
NOTES:

1) This detail is intended to show only items specific to monolithic manhole base. Refer to appropriate Manhole Standard Sheets for detailed specifications relating to the entire structure.

STANDARD SHEET

Typical Catch Basin – Precast Concrete

(N.T.S.)



NOTES:

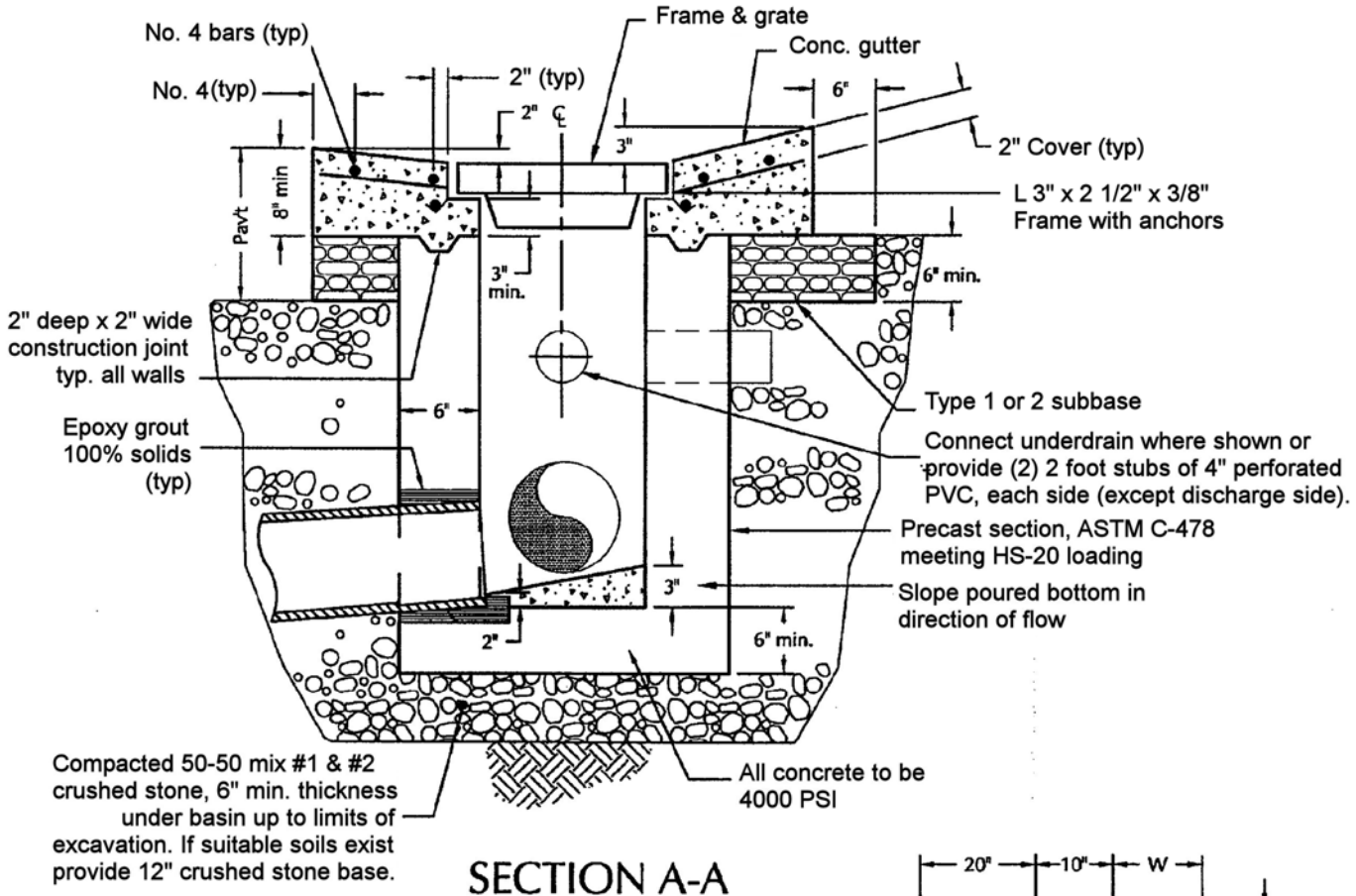
1. The entire exterior & interior surfaces of the catch basin shall be painted with two coats of Carboline 300M.
2. Catch basin shall not be connected to any sanitary sewer.
3. Provide frames and grates conforming to NYSDOT Standard Sheets M655-10R2, M655-6.
4. Frames to have strap anchors conforming to Syracuse Casing configurations F, FWA-3 and FWA-4 as applicable.
5. Distance between inlets shall be 150’ typical or as directed by the Superintendent of Public Works.
6. Unused knockouts shall be filled with brick and mortar to full thickness. Waterproof with two coats of Carboline 300M.

TYPE	INTERIOR DIM.		FRAM & GRATE (SYRACUSE CASTING SIZE)
	W	L	
1	24	24	N). 9 Rectangular
2	30	30	NO. 17 Rectangular

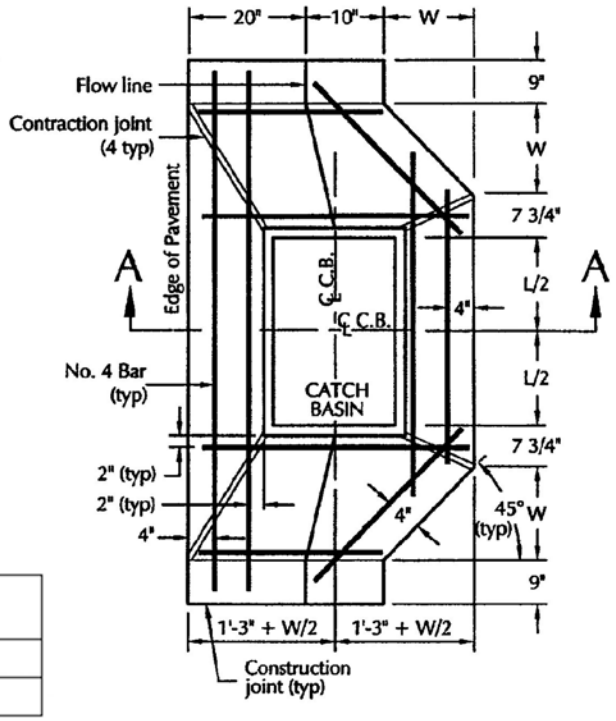
STANDARD SHEET

Typical Catch Basin – Concrete Gutter

(N.T.S.)



SECTION A-A



PLAN

NOTES

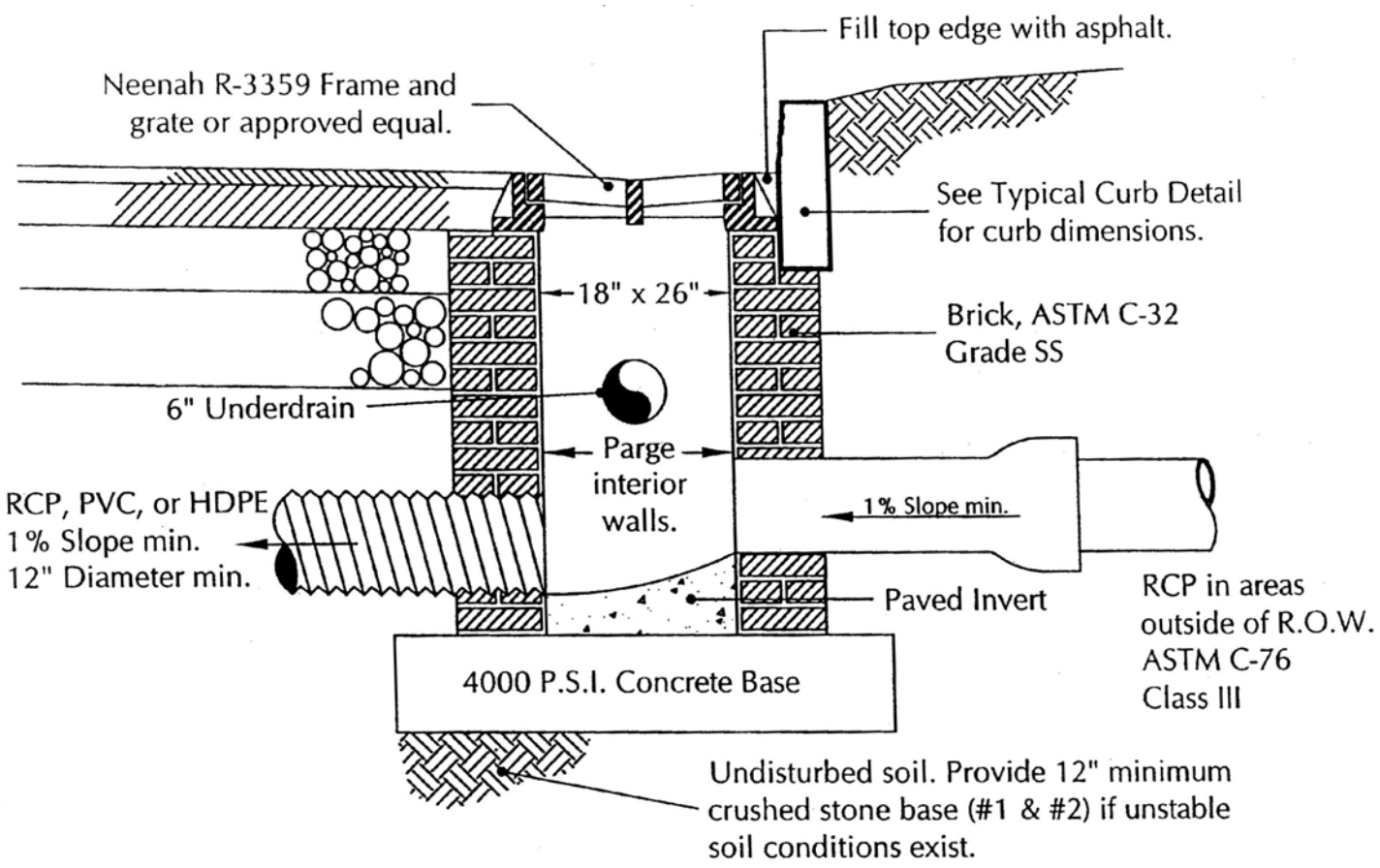
1. The entire exterior & interior surfaces of each catch basin shall be painted with two coats of Carboline 300M.
2. Catch basin shall not be connected to any sanitary sewer.
3. Provide frames and grates conforming to NYSDOT Standard Sheets M655-10R2, M655-6.
4. Frames to hve strap anchors conforming to Syracuse Casing configurations F, FWA-3 and FWA-4 as applicable.
5. Distance between inlets shall be 150' typical or as directed by the Superintendent of Public Works.

TYPE	INTERIOR DIM.		FRAM & GRATE (SYRACUSE CASTING SIZE)
	W	L	
1	24	24	N). 9 Rectangular
2	30	30	NO. 17 Rectangular

STANDARD SHEET

Typical Drop Inlet
Granite Curb

(N.T.S.)



Mortar Mix:
2 parts portland cement (type II)
4 parts sand
Or approved premixed product.

NOTES:

1) See Standard Sheet H 6.2 for precast basin detail.

2) Distance between inlets shall be 150’ typical or as ordered by the Commissioner of Public Works.

STANDARD SHEET

Sanitary and Storm Sewer Manhole

(N.T.S.)

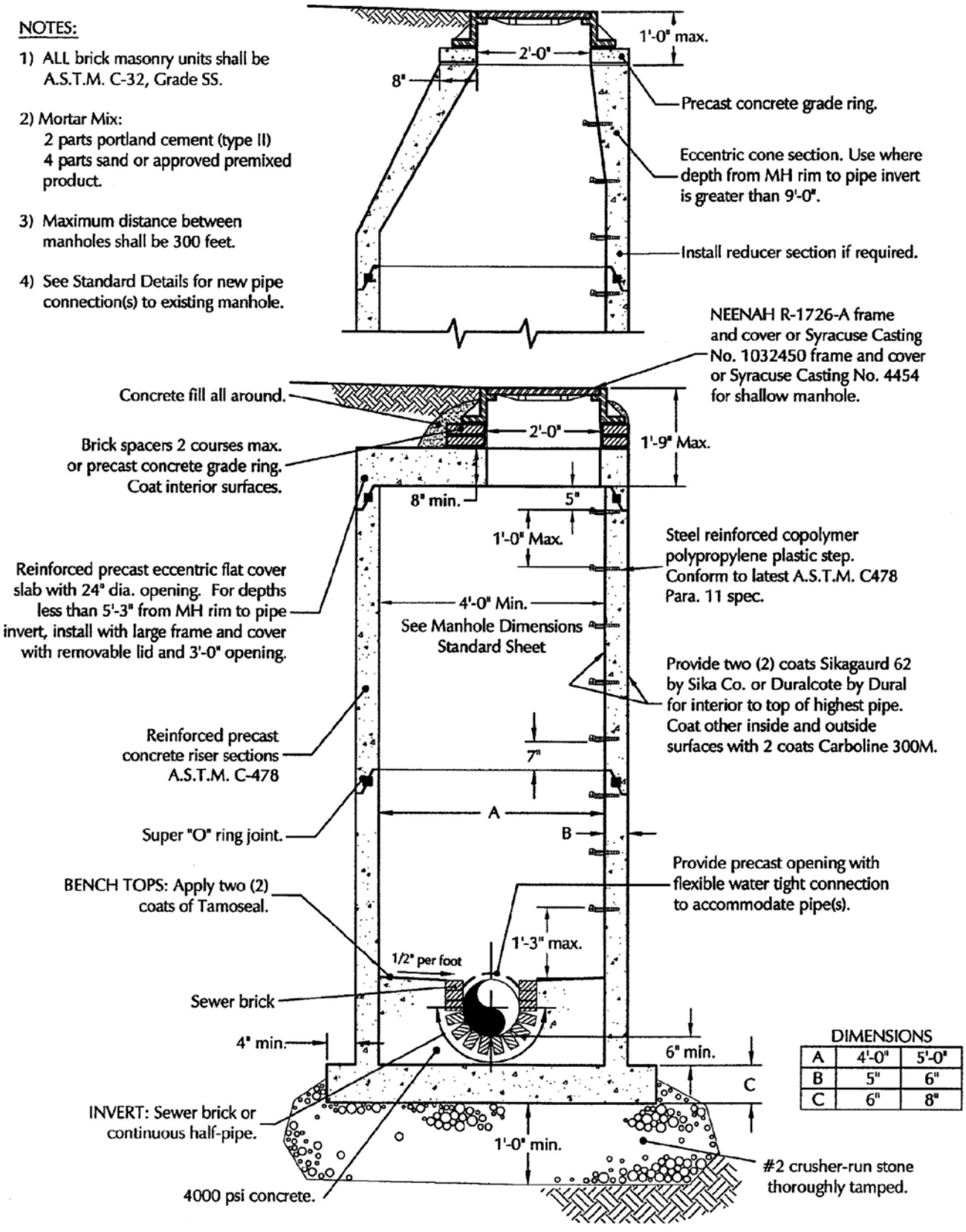
NOTES:

1) ALL brick masonry units shall be A.S.T.M. C-32, Grade SS.

2) Mortar Mix:
   2 parts portland cement (type II)
   4 parts sand or approved premixed product.

3) Maximum distance between manholes shall be 300 feet.

4) See Standard Details for new pipe connection(s) to existing manhole.

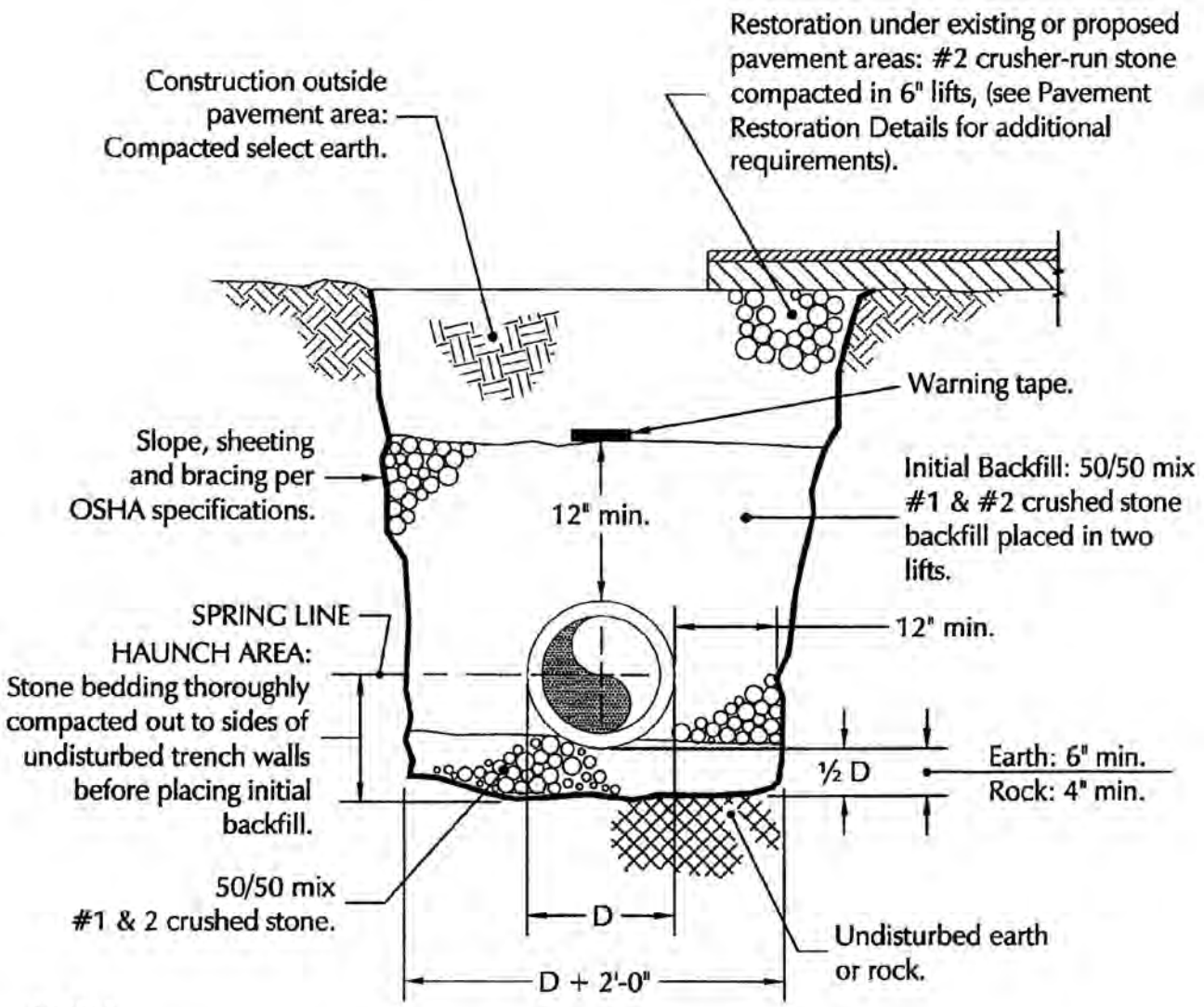


DIMENSIONS		
A	4'-0"	5'-0"
B	5"	6"
C	6"	8"

STANDARD SHEET S-3

Sanitary and Storm Sewer Bedding Detail
Flexible and Rigid Pipe Systems

(N.T.S.)



NOTES:

1) When pipe crosses under proposed new road construction where unstable soil conditions exist, select gravel compacted in 12" lifts shall be backfilled full depth of trench.

2) In new construction, where storm and sanitary sewers cross each other, the trench shall be excavated down to the previously laid sewer and backfilled with compacted #2 crusher-run stone to insure adequate support.

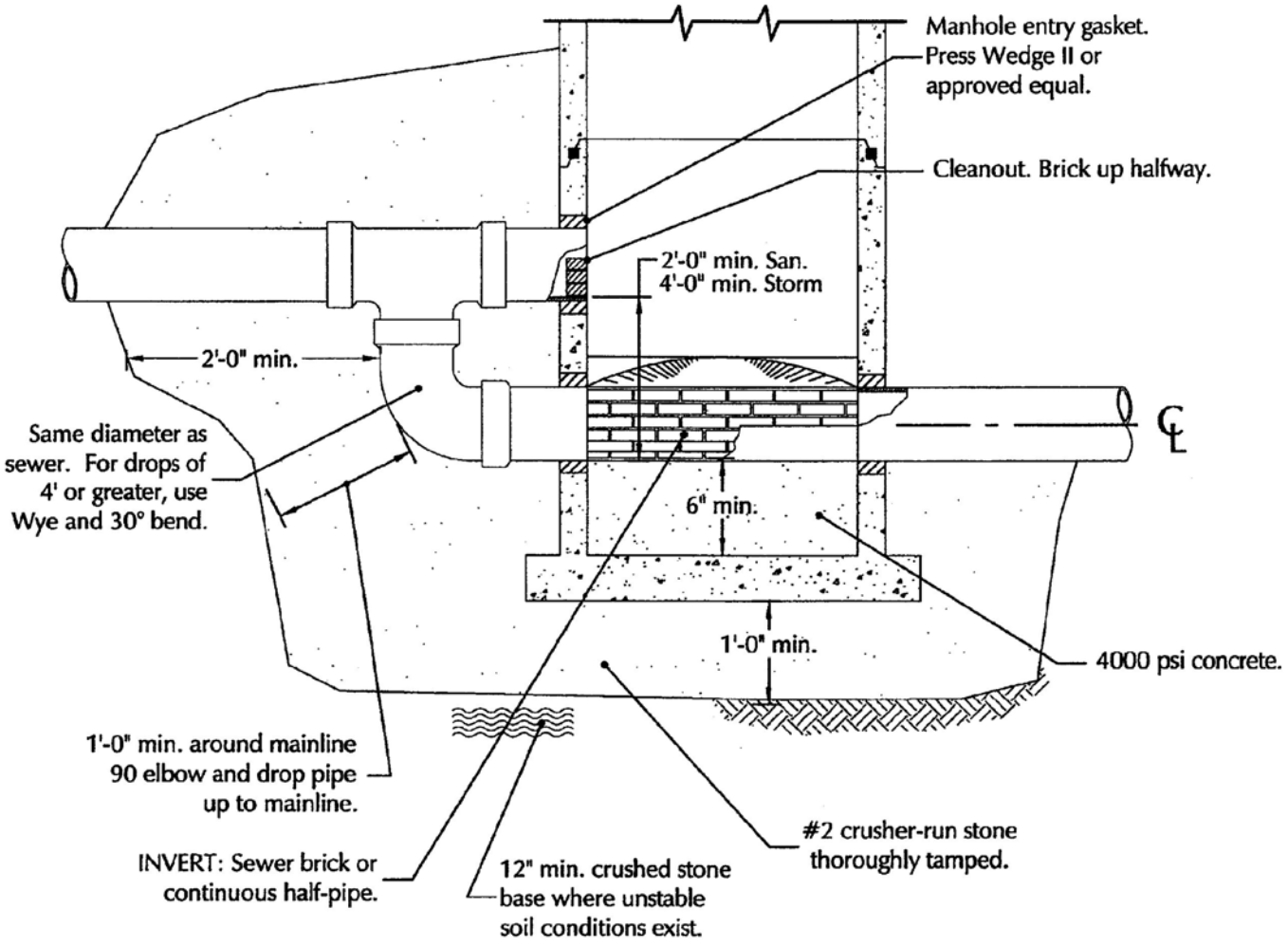
3) 8" minimum pipe diameter is required for dedication of sanitary mains.

4) 12" minimum pipe diameter is required for dedication of storm mains, except crossover may be 8" pipe diameter.

STANDARD SHEET

Sanitary and Storm Sewer Outside Drop Manhole Monolithic Base

(N.T.S.)



NOTES:

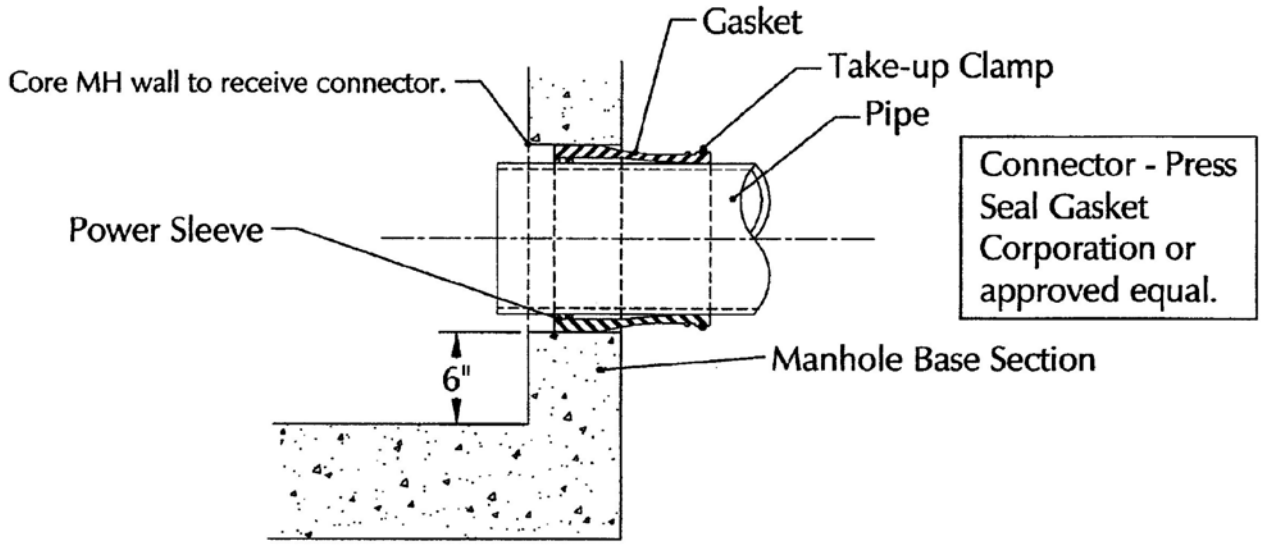
1) The drop manhole shall be constructed whenever the inlet invert is such that the 9" maximum slope is exceeded (See Manhole Dimensions Standard Detail).

2) This detail is intended to show only items specific to drop manhole. Refer to Sanitary Sewer Manhole Standard Detail for detailed specifications relating to the entire structure.

STANDARD SHEET

Pipe Connection to Existing Manhole

(N.T.S.)



SPECIFICATIONS:

Gasket:

Minimum thickness of gasket material:

Psx 8" holes thru 16" hole sizes	.290" ± .025
Psx-2 18" holes and larger hole sizes	.300" ± .025
Minimum compound tensile strength of rubber	1800 psi
Elongation of rubber	450%-550%
Shore a durometer of rubber	42 + 5

Rubber compound shall meet or exceed ASTM C-923 requirements.

Power sleeve:

Type 304 stainless steel.

Tensile strength of steel	85,000 psi
Yield strength of steel	35,000psi
8" thru 26" hole sizes	1.5" wide 11 gauge
28" hole sizes and larger	1.5" wide 10 gauge

Power sleeve stainless steel shall meet or exceed all ASTM C-923 requirements.

Take-up clamps:

All stainless steel clamp.
Band, saddle and housing made of type 302.
Screw made of type 305 stainless steel.
Stainless steel take-up clamps shall meet or exceed all ASTM C-923 requirements.

For pipes with O.D.'s less than 14.5" (PSX), a single clamp is standard; (PSX-2) double clamps is optional. For pipes with O.D.'s larger than 14.5" double clamps (PSX-2) is standard. For proper clamp sizing see PSX clamp accommodation chart.

INSTALLATION PROCEDURE:

1) After coring manhole to receive connection, clean and inspect the connector and the pipe end to be installed.

2) Insert pipe into connector until end of pipe breaks the plane of the inside manhole wall. Position pipe in the center of the connector.

3) Install take-up clamp(s) in groove(s) at pipe receiving end of gasket. Re-check the interior of connector and pipe barrel surfaces to insure they are clean.

4) Tighten take-up clamp(s) with ratchet or torque wrench to 60 in./lbs.

5) Adjust pipe to line and grade. Use proper bedding and backfill per Town Specifications.

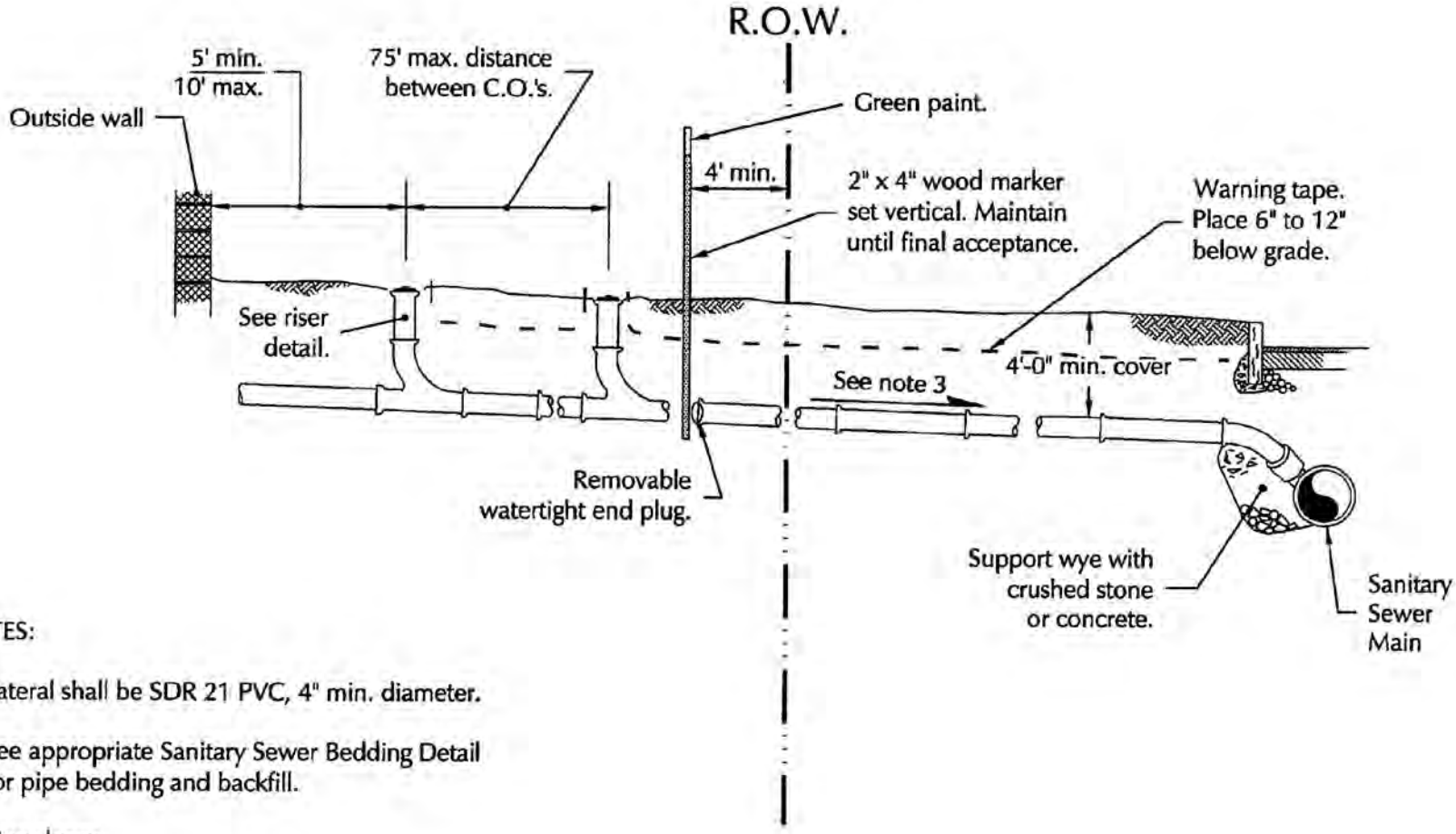
6) Any pipe stubs installed in the manhole must be restrained from movement.

7) Openings in manhole risers to be a minimum of 6" from riser joints.

STANDARD SHEET S-1

Sanitary Sewer Building Lateral

(N.T.S.)



NOTES:

1) Lateral shall be SDR 21 PVC, 4" min. diameter.

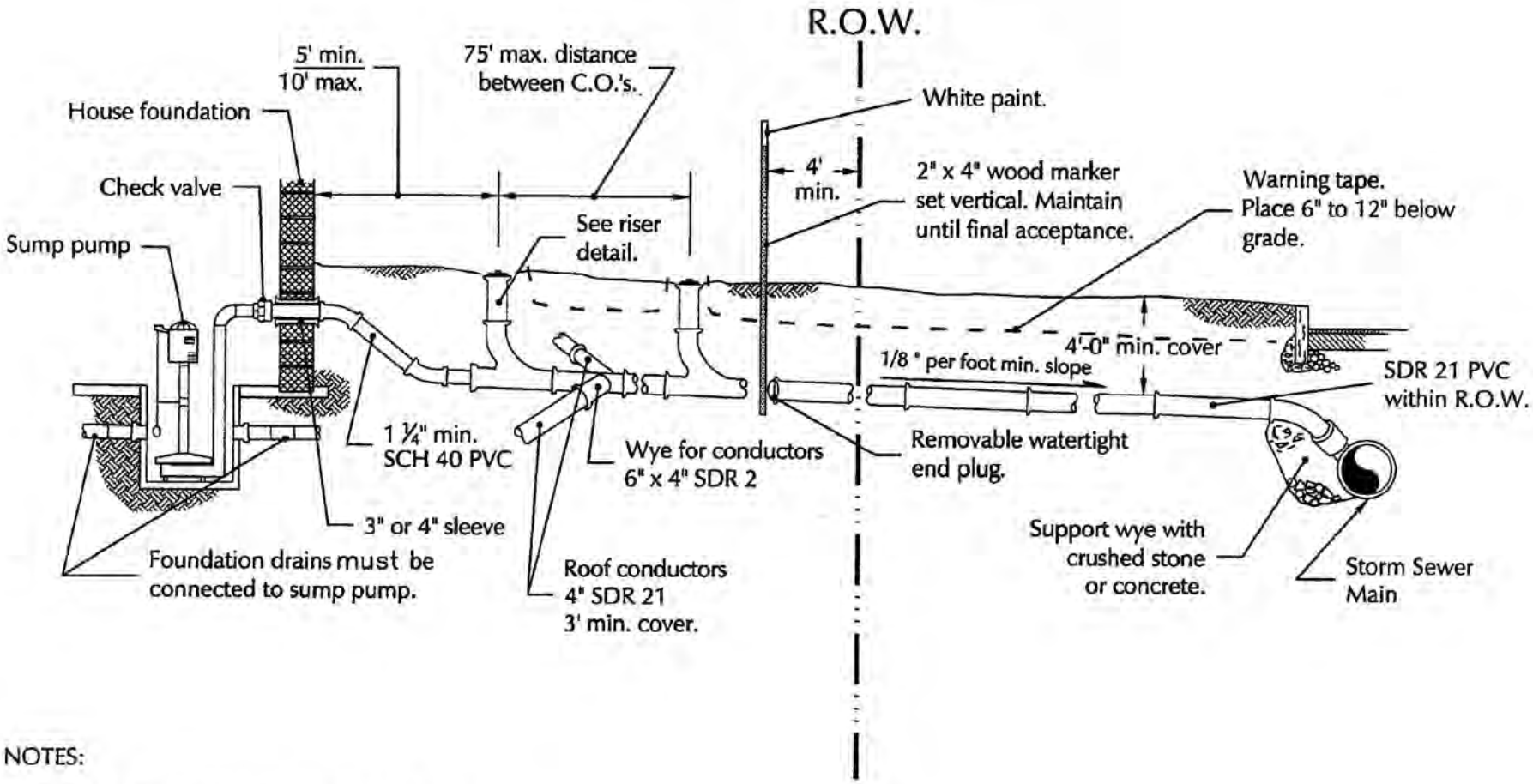
2) See appropriate Sanitary Sewer Bedding Detail for pipe bedding and backfill.

3) Pipe slope:
   4" dia. - 1/4" per foot, min.
   6" dia. - 1/8" per foot, min.

STANDARD SHEET S-2

Storm Sewer Building Lateral

(N.T.S.)



NOTES:

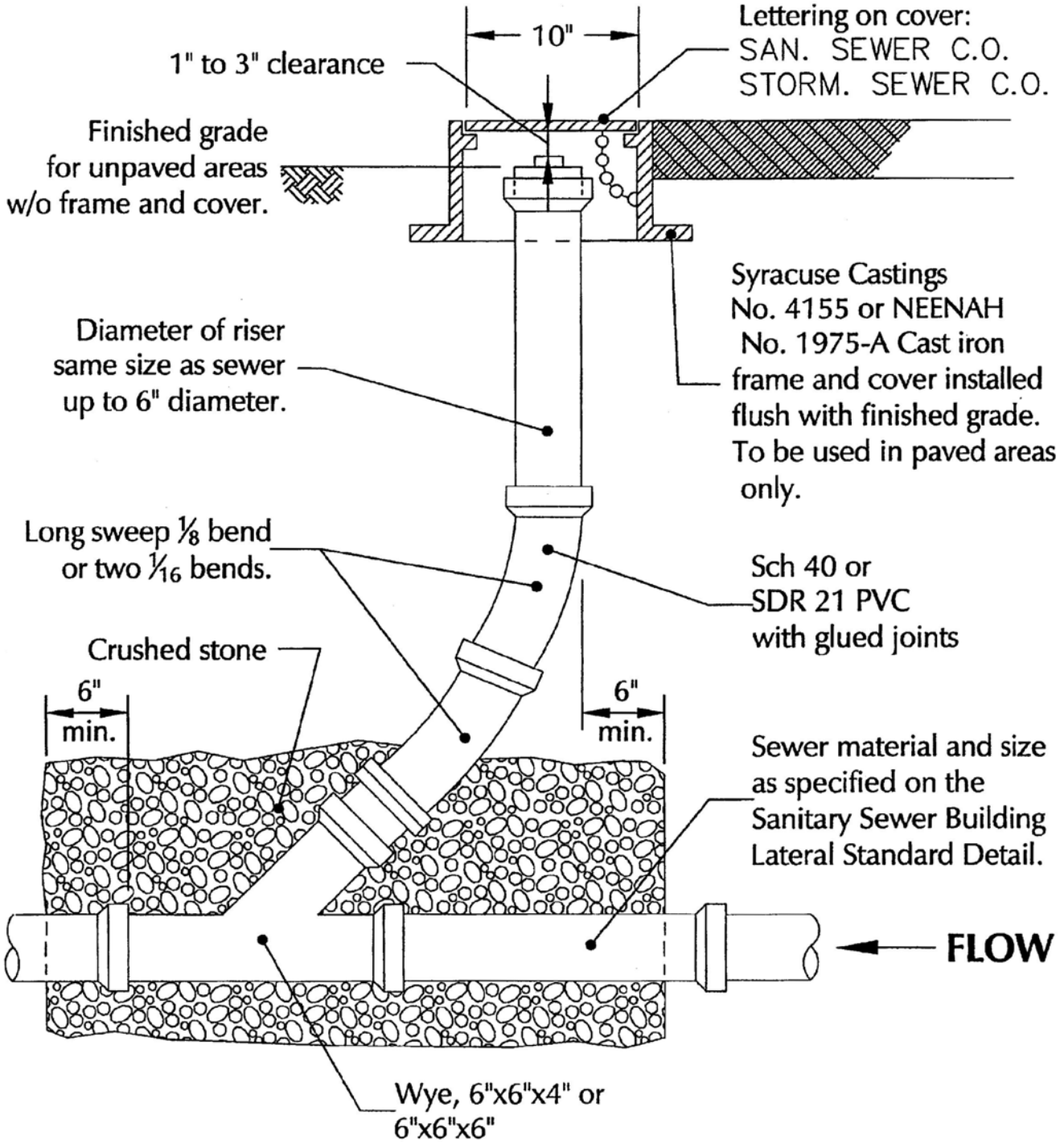
1) Lateral shall be SDR 21 PVC, 6" min. diameter.

2) See appropriate Storm Sewer Bedding Detail Standard Sheet for pipe bedding and backfill.

STANDARD SHEET

Sanitary and Storm Sewer Cleanout

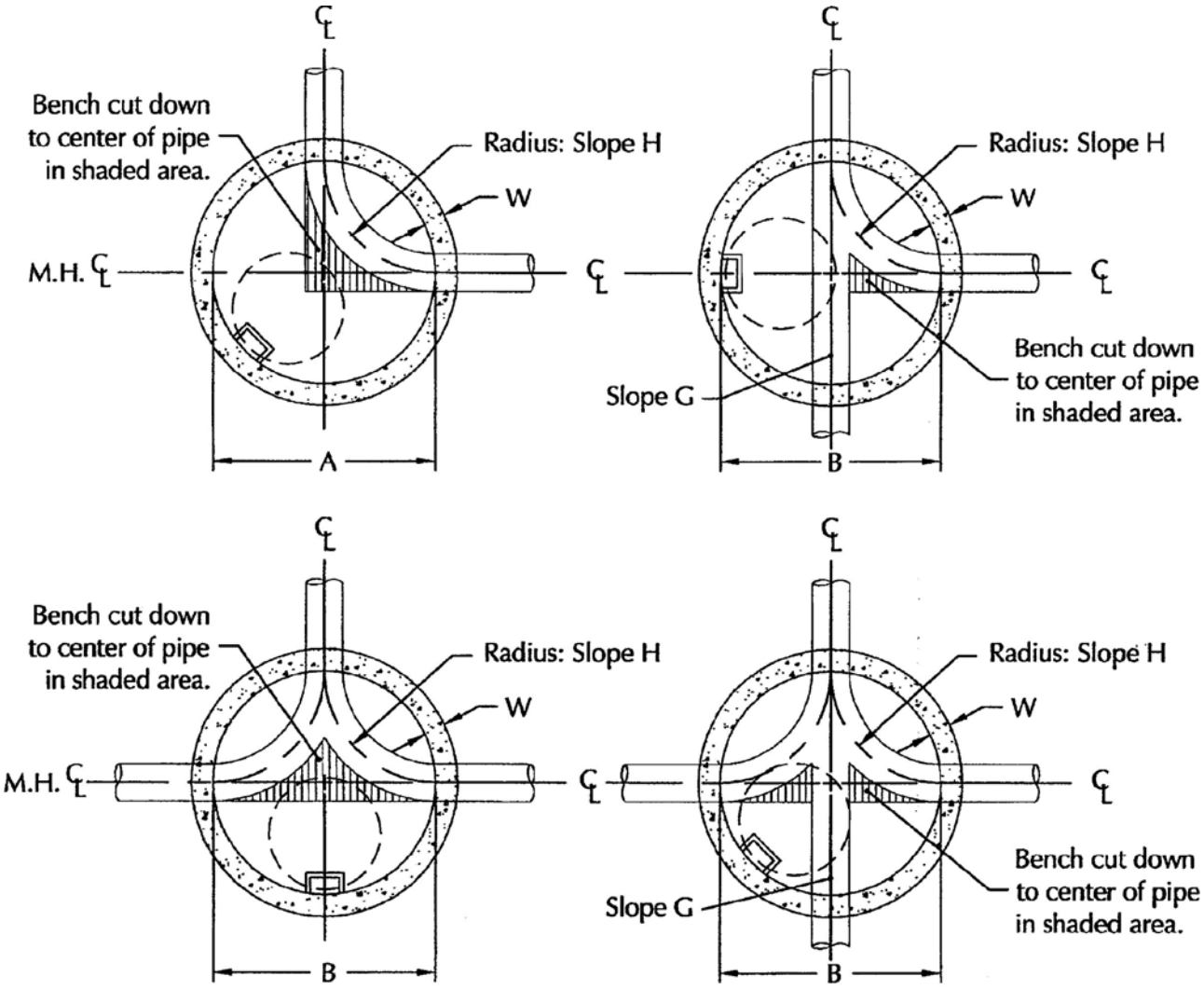
(N.T.S.)



STANDARD SHEET

Manhole Dimensions

(N.T.S.)



Sewer Pipe Dia.		8"	10"	12"	15"	18"	Greater than 18"
Manhole Diameter	A	4'-0"	4'-0"	4'-0"	5'-0"	5'-0"	As per requirements of DPW
	B	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"	
Invert Difference	G	0.2'	0.2'	0.2'	0.2'	0.2'	
	H	0.5'	0.4'	0.4'	0.4'	0.4'	

Manhole Barrel Wall Thickness		
A	4'-0"	5'-0"
B	-	5'-0"
W	5"	6"

NOTES:

1) The maximum invert slope shall be 9 inches.

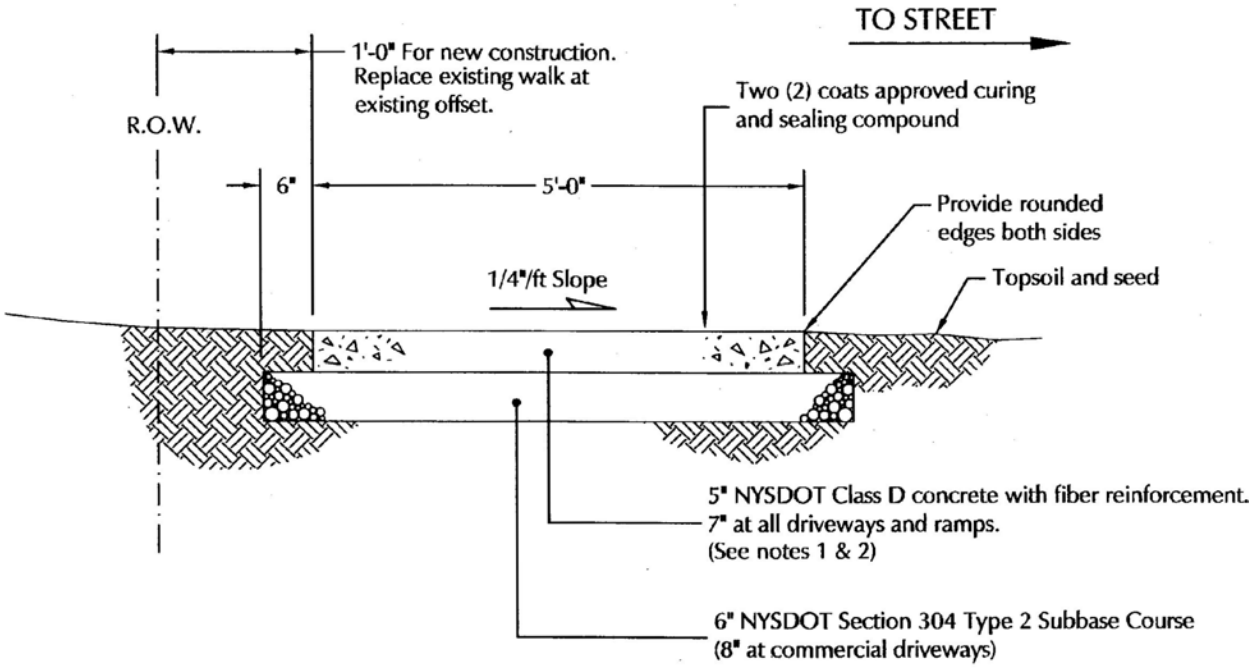
2) Where inlet and outlet pipes are different diameters, the slope must not be less than the difference in diameter or greater than 9 inches.

3) Refer to appropriate Manhole Standard Detail for detailed specifications relating to the entire manhole structure.

STANDARD SHEET H-2

Sidewalk Within Right of Way

(N.T.S.)



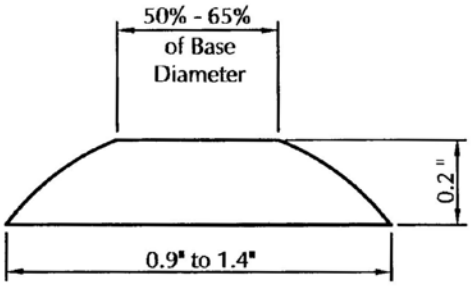
NOTES:

1. Concrete shall comply with NYSDOT Class D, air entrained with fiber reinforcement. Minimum concrete strength shall be 4500psi at 28 days.
2. Fibrous concrete reinforcement shall comply with NYSDOT material specification 711-01.
3. Compacted subbase material shall comply with NYSDOT item 304.12 Type 2.
4. Cross slope grade shall be as shown on detail whenever possible and sloped towards road pavement.
5. Grade sidewalk surface to match adjoining sidewalk. Provide stiff bristle broom finish and finish edges with radius edging tool. The finished concrete surface shall be treated with (2) coats approved curing and sealing compound.
6. Provide control joint every 5-feet and full depth expansion joint at 25-feet max.
7. All control joints shall be 1/8-inch min. to 1/4-inch max in width and 1/4 of the thickness of the concrete. Control joints shall be tooled (No sawcuts allowed).
8. Expansion joints shall be 1/2-inch premoulded bituminous impregnated felt, full width and depth of concrete slab.
9. Where sidewalk abuts wall or building, provide 1/2-inch wide premoulded bituminous joint filler with 5/8-inch deep x 1/2-inch wide self leveling caulking sealant.
10. Concrete sidewalks through all driveways shall be increased to a 7-inch thickness. At commercial drives only, the subbase material shall also be increased to 8-inch thickness.
11. All work shall conform to ADA requirements. Provide detectable warning field at intersections and commercial drives.
12. No concrete shall be placed before April 20th, or after October 31st. No concrete shall be placed unless the ambient air surface temperature is above 40 degrees.

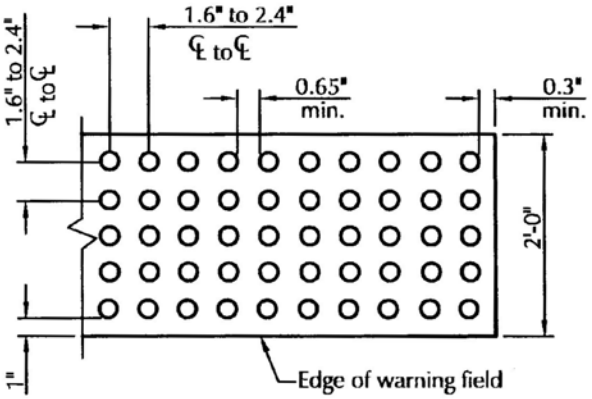
STANDARD SHEET

Detectable Warning Details

(N.T.S.)



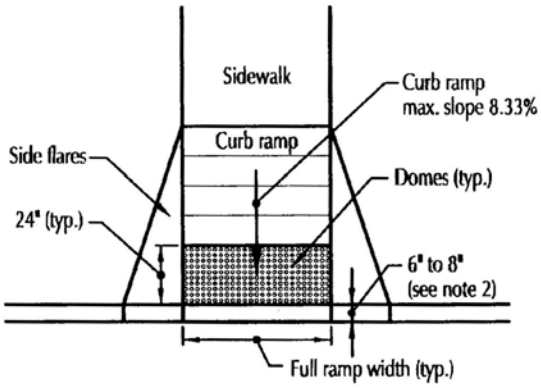
DOME SECTION



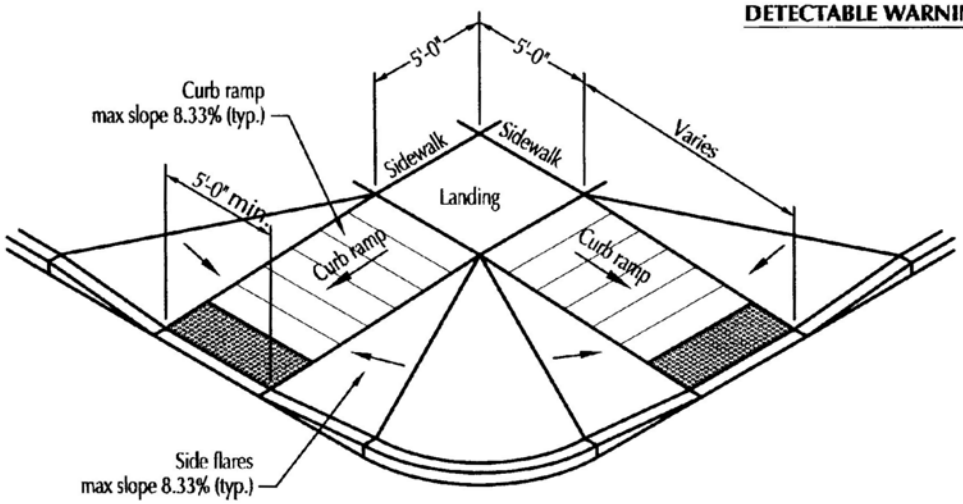
DOME SPACING

GENERAL NOTES:

1. **Scale:** The details provided are not drawn to scale. The quantity of domes depicted on the details is for illustration only, and do not depict actual scale or number.
2. **Curb Ramps and Blended Transitions:** Detectable warnings shall be located so that the edge of the warning field nearest to the roadway or street surface is 6 inches minimum and 8 inches maximum from the curb line. The detectable warning shall extend the full width of the curb ramp or flush surface.
3. **Ramp Configuration:** Refer to NYSDOT Standard Detail 608 for possible ramp configurations.
4. **Dome Alignment:** Domes shall be aligned on a square grid in the predominant direction of travel.
5. **Color:** The detectable warning field shall be "charcoal" in color, unless otherwise approved by the Village.



DETECTABLE WARNING AT CURB RAMP

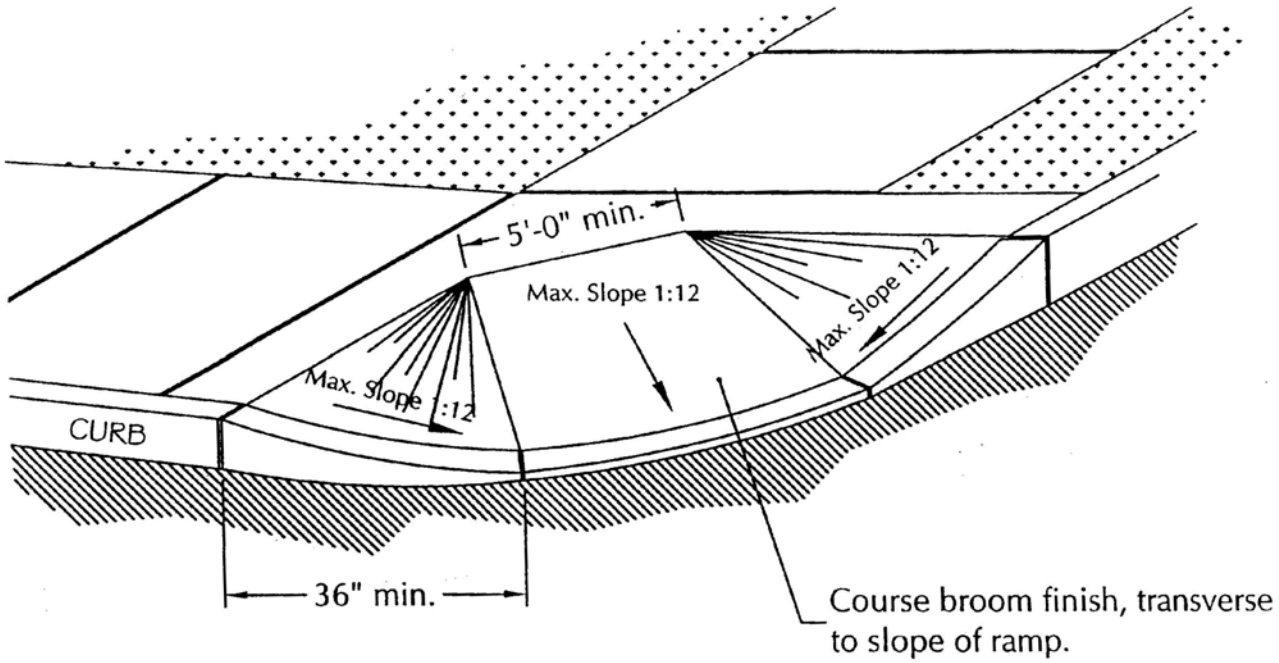


CURB RAMP WITH SIDE FLARES

STANDARD SHEET

Typical Sidewalk Access Transition

(N.T.S.)



NOTES:

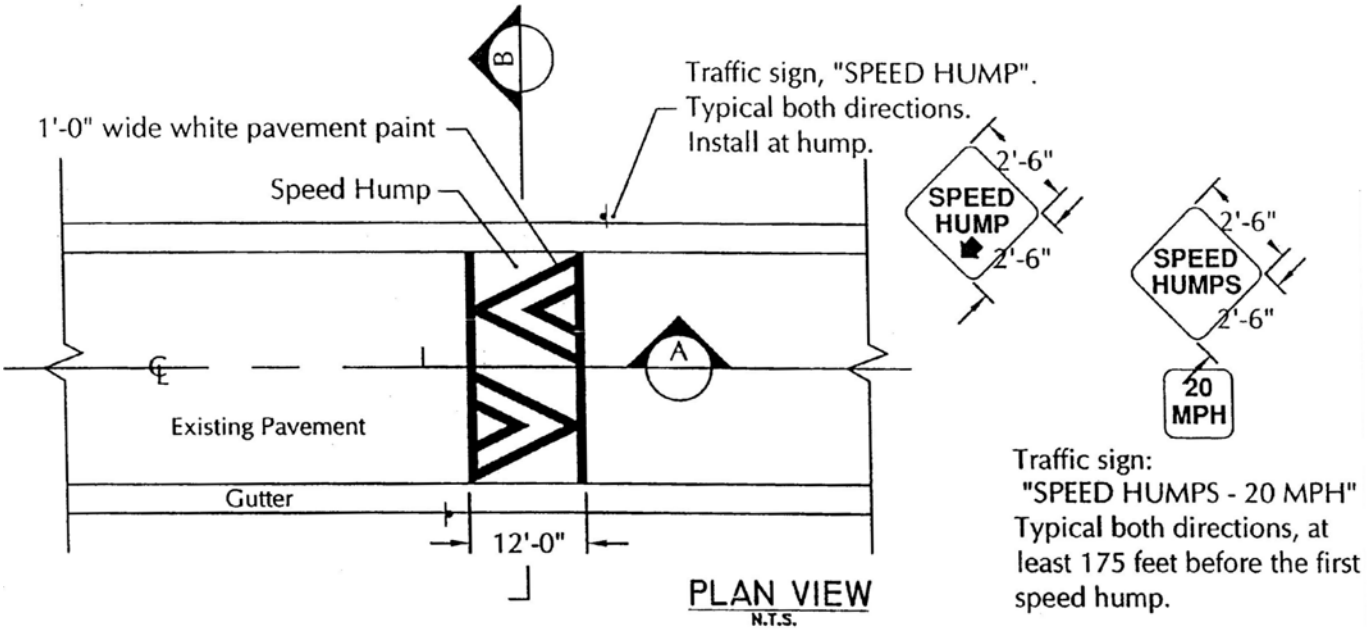
1) See Standard Sheets H4 and H5.1 for sidewalk construction details.

2) All work shall conform to ADA requirements.

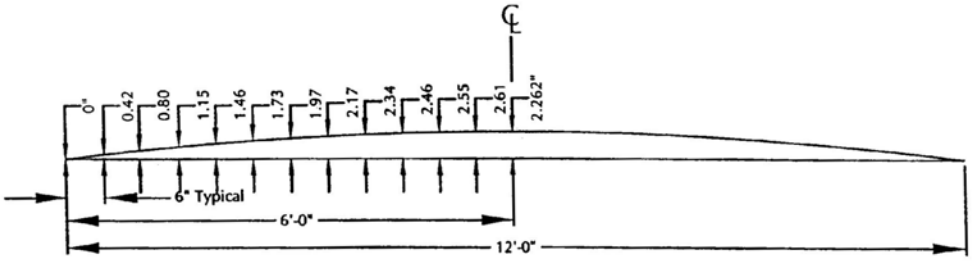
STANDARD SHEET

Speed Control Hump

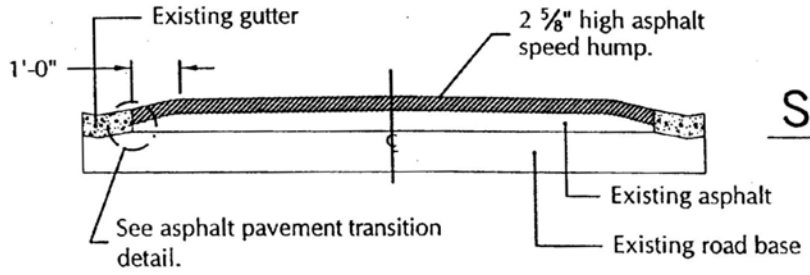
(N.T.S.)



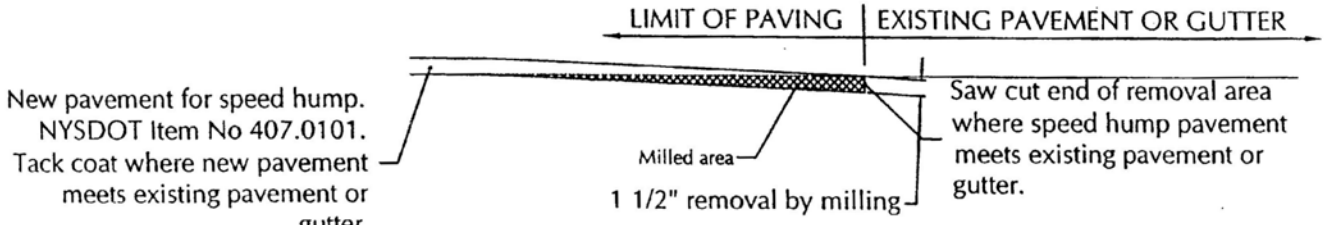
PLAN VIEW
N.T.S.



SECTION A
HUMP GEOMETRY
N.T.S.



SECTION B
N.T.S.

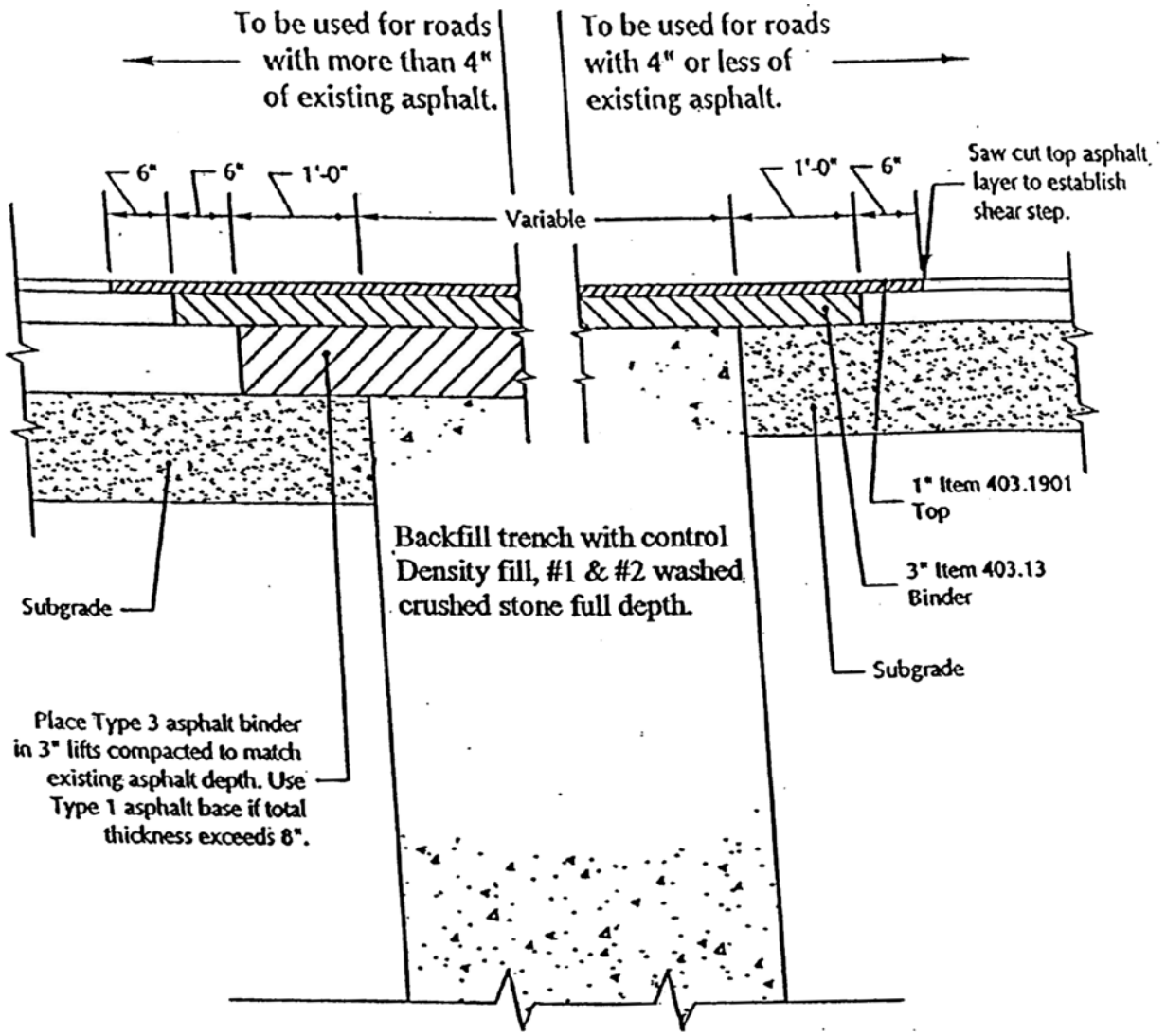


PAVEMENT TRANSITION DETAIL
N.T.S.

STANDARD SHEET H-1

Pavement Restoration Detail

(N.T.S.)



NOTE: ALL JOINTS SHALL BE SAW CUT AND TACK COATED

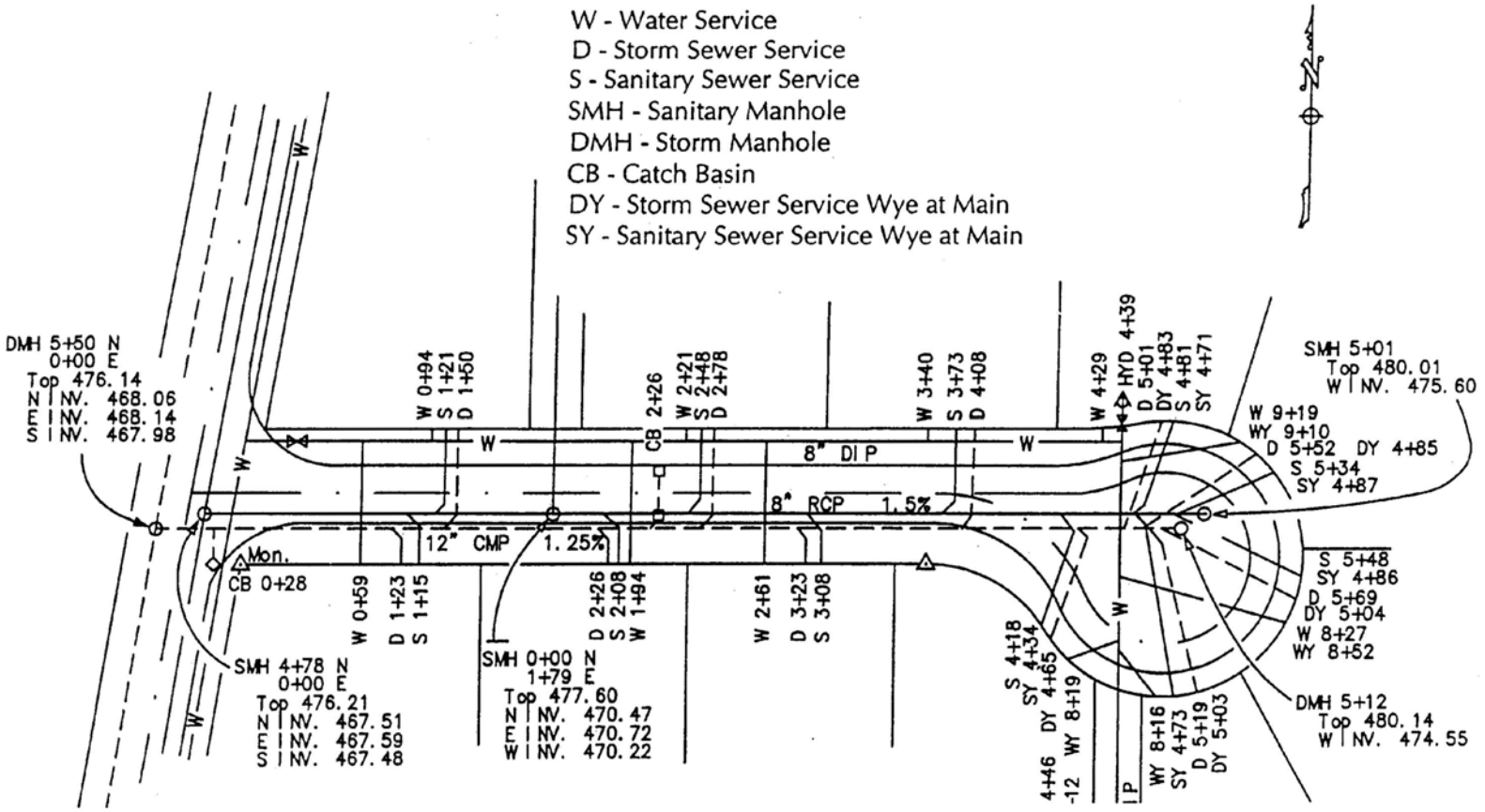
The contractor shall provide one traffic lane during working periods and two traffic lanes during non-working periods for the open-cut crossings. Work shall be limited to the hours of 8:00 A.M. to 4:00 P.M. for pavement crossing. Flag men, signs, lights, barricades, and other safety devices will be required as directed by the Director of Public Works or Highway Superintendent. contractor shall notify the Department of Public Works at least 48 hours prior to excavation.. Phone the Department of Public Works at 624-3620.

Application and permit forms can be obtained from the Village Office at 5 East Street from 9:00 A.M. to 4:30 P.M. Monday through Friday.

STANDARD SHEET

Typical Record Map

(N.T.S.)



NOTE:
All stationing is derived from the centerline of the utility, not the centerline of road. Manhole stationing is based upon the center of the manhole opening, not the center of the manhole barrel. If the service laterals from the utility to the R.O.W. are not at a 900 angle to the utility main, two stations are required: one station at the wye (DY or SY), and one station at the R.O.W. (D or S), as shown above. Independent stationing shall be required for each utility. Show as-built manhole rim and invert elevations.