DESIGN CRITERIA & SPECIFICATIONS

JUNE 2009

FINAL

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INTRODUCTION

This document provides both guidelines and regulations for the development of property within the Town of Walworth. Its intent is to provide the minimum standards for proper design and construction of facilities which will be dedicated to the Town, assure proper design and construction of facilities affecting the health and general welfare of the community and assure that development is compatible with the long range development plans of Walworth.

It is not intended to conflict with zoning policies or general control of development by the Town Board and Planning Board, but rather to supplement such policies by providing the technical details necessary to allow development in a successful manner.

Regulations for building design and construction are covered elsewhere within the *Code of the Town of Walworth* and the various Building Codes of New York State.

The "General Requirements" section of this manual provides a guide to assist in the approval of development plans and completed works, which are to be dedicated to the Town of Walworth.

The second section, entitled "Design Criteria," provides a guide for the Design Professional in the preparation of plans and other required information necessary for construction.

The third section is entitled "Construction Procedures and Material Specifications." This section provides requirements for the materials and procedures to be used in the construction of facilities dedicated to the Town.

The fourth section is entitled "Standard Details." This section provides detail drawings, which supplement the "Construction Procedure and Material Specifications." Developers bear the responsibility of requiring their Contractors to familiarize themselves with this document for procedures, materials and details.

The Developer shall not begin any work until all plans have been signed; all permits obtained; all easements have been filed; a letter of credit established; and a preconstruction meeting, if necessary, has been held.

Section 1
General Requirements

1.1 DEFINITIONS AND ABBREVIATIONS

The terms within this document shall have the meanings as defined in the *Code of the Town of Walworth,* latest edition.

The following abbreviations are used throughout the Specifications and Construction Details:

AASHTO	American Association of State Highway & Transportation Officials
ABS	Acrylonitrile Butadiene Styrene
ACI	American Concrete Institute
AISC	American Institute of Steel Construction
ANSI	American National Standards Institute
ASTM	American Society for Testing Materials
ASCE	American Society of Civil Engineers
AWWA	American Water Works Association
CISP	Cast Iron Soil Pipe (Extra Heavy)
CISPI	Cast Iron Soil Pipe Institute
CU	Copper
CMP	Corrugated Metal Pipe
CMPA	Corrugated Metal Pipe Arches
CPP	Corrugated Plastic Pipe
CSP	Corrugated Steel Pipe
CD	Cross Machine Direction
°C	Degrees Celsius
°F	Degrees Fahrenheit
DEC	Department of Environmental Conservation
DIP	Ductile Iron Pipe
etc.	etcetera
FL	Flanged
GV	Gate Value
in.	Inch
ID	Inside Diameter
L.F.	Linear Feet
LEL	Low Explosive Limit
MD	Machine Direction
max.	Maximum
MJ	Mechanical Joint
Mg/l	Milligram per liter
mm.	Millimeter
min.	Minimum
MCDOT	Monroe County Department of Transportation
MS4	Municipal Separate Storm Sewer Systems
NCPI	National Clay Pipe Institute
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health

NYSDOT	New York State Department of Transportation
NOI	Notice of Intent
O&M	Operation and Maintenance
OD	Outside Diameter
PERF	Perforated
PC	Point of Curve
PT	Point of Tangent
PE	Polyethylene
PVC	Polyvinyl Chloride Pipe
PSI	Pounds per Square Inch
POTW	Publicly Owned Treatment Works
R/Rad.	Radius
RCP	Reinforced Concrete Pipe
R.O.W	Right-Of-Way
San.	Sanitary
SDS	Sewage Disposal System
SF or Sq. Ft.	Square Feet
SEQRA	State Environmental Quality Review Act
SWPPP	Stormwater Pollution Prevention Plan
i.e.	That is…
TDH	Total Dynamic Head
TMDL	Total Maximum Daily Loads
TYP	Typical
USDA	United States Department of Agriculture
VCP	Vitrified Clay Pipe

1.2 AREAS OF RESPONSIBILITY

1.2.1. TOWN BUILDING DEPARTMENT, INSPECTION AND CODE ENFORCEMENT OFFICIAL

1.2.1.1 Receiver of plans, applications and EAF forms from Applicant and determines if they meet Planning Board's checklist. If plans and applications do not meet requirements, Secretary must state the deficiencies and return to Applicant for him/her to reapply.

1.2.1.2 Place Applicants on and prepare agenda for Planning Board Meeting.

1.2.1.3 Review plans to determine permits required.

1.2.1.4 Review plans for zoning compliance with noted areas of non-compliance for submission to Zoning Board of Appeals.

1.2.1.5 Review plans for access and development for emergency noted fire protection vehicles.

1.2.1.6 Review plans for adequate water supply, hydrant location and sprinkler requirements for fire protection and location for emergency access and fire lanes.

1.2.1.7 Place advertisements for public hearing.

1.2.1.8 Prepare meeting minutes and letters of resolution.

1.2.1.9 Review bills for engineering and inspection fees incurred by the Town of Walworth.

1.2.1.10 Refer plans to appropriate officials, agencies and boards when received.

1.2.1.11 Maintain related inspection records and time sheets.

1.2.1.12 Recommend revisions to Town design criteria, when appropriate.

1.2.1.13 Issue Building Permits, Certificates of Occupancy, Temporary Certificates of Occupancy, Certificates of Compliance, Operating Permits and Stop Work Orders.

1.2.1.14 Review and approve, with appropriate fire commission, the location of emergency access, hydrant locations, fire lanes and sprinkler requirements.

1.2.1.15 Approve temporary fuel storage.

1.2.1.16 Approve temporary heating for buildings under construction/ renovation.

1.2.1.17 Coordinate and approve blasting activities.

1.2.1.18 Process billings for inspection services, curb cut permits and highway work permits.

1.2.1.19 Maintain records of subdivision maps and files.

1.2.1.20 Provide inspection for the installation of all dedicated street construction.

1.2.2 TOWN ENGINEER

1.2.2.1 Review plans for all proposed development in the Town.

1.2.2.2 Review of street layout, grades, alignment, traffic reports, roadway layouts and connections to existing roadways and related matters.

1.2.2.3 Review of utilities (storm and sanitary sewer) and all matters relative to design criteria and construction specifications.

1.2.2.4 Review of storm drainage, general grading and Stormwater Pollution Prevention Plans.

1.2.2.5 Recommendations as to special conditions and modifications (i.e. landscaping, lighting).

1.2.2.6 Review SEQR requirements for Planning Board.

1.2.2.7 Review and approval of Developer's Engineer’s Estimate of costs for improvements for Letter of Credit.

1.2.2.8 Review and approval of Developer's request for release of funds from amount held under the Letter of Credit or escrow account.

1.2.2.9 Inspection of site construction of dedicated facilities.

1.2.2.10 Verify all submittals are received prior to a pre-construction meeting.

1.2.2.11 Schedule and chair pre-construction meetings.

1.2.2.12 Inspect all dedicated facilities prior to termination of warranty period and report findings to Developer and Highway Superintendent.

1.2.3 TOWN ATTORNEY

1.2.3.1 Review of necessary legal papers for dedication of facilities, easements, Letter of Credit and surety.

1.2.3.2 Assist Town Boards of Town Law, Zoning and SEQRA issues.

1.2.3.3 Review of necessary legal documents for the formation of necessary improvement Districts.

1.2.3.4. Record all required legal documents for dedication and easements.

1.2.4 SUPERINTENDENT OF HIGHWAY DEPARTMENT

1.2.4.1 Operation and maintenance of Town streets and highways.

1.2.4.2 Operation and maintenance of Town dedicated utilities.

1.2.4.3 Review and approve street drainage/construction, connection to dedicated utilities and issue curb cut and driveway permits.

1.2.4.4 Bill developers for street signs.

1.2.4.5 Review and approve drainage plans, dedicated street design and layouts with Town Engineer.

1.2.4.6 Inspect all streets to be dedicated to the Town with Town Engineer and Building Inspector prior to acceptance of dedication by the Town Board.

1.2.5 TOWN BOOKKEEPER

1.2.5.1 Establish and maintain Irrevocable Letter of Credit files.

1.2.5.2 Issue letters to appropriate banking institutions for the release of funds from Letter of Credit.

1.2.6 MS-4 REPRESENTATIVE

1.2.6.1 Review all erosion control plans and inspect installations.

1.2.6.2 Prepare annual report.

1.2.6.3 Monitor the Town's Storm Water Management Plan.

1.2.7 SEWER SUPERINTENDENT

1.2.7.1 Operation and maintenance of Town sewers.

1.2.7.2 Operation and maintenance of sewer treatment plant.

1.2.7.3 Review and approve sanitary sewer plans with Town Engineer.

1.2.8 TOWN ASSESSOR

1.2.8.1 Provide tax parcel numbers, street numbers and house numbers for subdivided lots.

1.2.8.2 Verify that taxes are paid prior to signing approved plats and site plans.

1.2.9 PLANNING BOARD

1.2.9.1 Conduct public hearings on subdivisions, site plans and permit applications.

1.2.9.2 Approve or deny applications.

1.2.9.3 Determine conditions of approval.

1.2.9.4 Grant conditional use permits for new development.

1.2.9.5 Sign all approved subdivision and site plans (Chairperson only)

1.2.9.6 Approval of home occupancy and special use permits.

1.2.9.7 Inspect all development sites prior to public hearing.

1.2.9.8 Review and consider special permits.

1.2.10 ZONING BOARD OF APPEALS

1.2.10.1 Conduct public hearings following the legal appeals process.

1.2.10.2 Grant or deny relief for the two types of relief – Interpretive and Variance (Use and/or Area).

1.2.10.3 Interpret zoning ordinances.

1.2.10.4 Inspect all development sites prior to public hearing.

1.2.11 TOWN BOARD

1.2.11.1 Review and consider dedication of roads.

1.2.11.2 Review and consider special district requests.

1.2.11.3 Review and consider waivers from Town design specifications, when warranted.

1.2.11.4 Review and consider revisions to the design specifications.

1.2.11.5 Final approval of amount for Irrevocable Letter of Credit/Cash Deposit.

1.3 SUBDIVISION PROCEDURES

Refer to Chapter 151 of the Town Code for:

- Subdivision Approval Procedure
- Concept Application Procedure
- Preparing Preliminary Plat Plan Application
- Preliminary plats
- Final plats
- Final plat record sheet
- Filing requirements

1.3.1 GENERAL

Final Plat Drainage Report

When requested by the Town Engineer, this report shall expand upon the report submitted at the preliminary plan stage and shall present plans and supporting data for stormwater control drainage provisions within the subdivision, including:

1) Plan, profiles, typical and special cross sections of proposed stormwater drainage facilities.

2) Supporting final design data and copies of computations used as a basis for the design capacities and performance of the drainage facilities.

3) Subdivision grading plan development to suitable contour interval with grading details to indicate proposed street grades and building site grades and elevation through the subdivision. The contour interval of the grading plan shall be one (1), two (2) or five (5) feet (vertical), the selection to be determined by the Town Engineer.

4) Erosion report, if required.

5) If the subdivision is within or adjacent to the one-hundred-year-frequency floodplain of any body of water, a detailed analysis of the area with respect to a floodplain management land use will be included in the subdivision plat drainage report.

Final Plat Traffic Report

When requested by the Town Engineer, this report shall expand upon the report submitted at the preliminary plan stage and shall present plans and supporting data for traffic control within the subdivision, including:

1) Study of existing traffic flow patterns.

2) Evaluation of project-generated traffic (quantity, rate and pattern).

3) Evaluation of impact of project-generated traffic on existing traffic and facilities.

4) Recommendations for measures and/or for facilities to provide proper and adequate traffic situation after project completion.

5) An in-depth study as may be required by the Board.

Evaluation of Impact on Existing Water and/or Sanitary Sewer Facilities

When requested by the Town Engineer, the applicant shall expand on the report submitted at the preliminary plan stage and shall present plans and supporting data for evaluation of the impact on existing water and/or sanitary sewer facilities within the subdivision, including:

1) Plan, profiles, typical and special cross sections.

2) Supporting final design data and copies of computations used as a basis for the design capacities and performance of the drainage facilities.

1.3.2 INSTALLATION OF IMPROVEMENTS AFTER FINAL APPROVAL

After the Planning Board has granted final approval and before the final signatures are placed on the plat, the Developer shall enter into an agreement with the Town for the subsequent completion of the platted improvements. The Developer shall submit with the tender of dedication and deeds to all streets and easements an Irrevocable Letter of Credit or Financial Guarantee so as to assure the proper and timely completion of the required improvements.

1.3.3 LETTER OF CREDIT

Financial responsibility of the Developer shall be in the form of a Letter of Credit from a recognized banking facility within the State of New York or an escrow deposit with the Town of Walworth in the form of cash or certified check, cashiers check or official bank check. Performance bonds are not acceptable as a substitute for a Letter of Credit. Upon receiving approval of a particular subdivision section and/or site plan, the Applicant's Licensed Professional Engineer shall submit an "Engineer's Estimate for Letter of Credit." The Developer's Engineer's Estimate shall be reviewed and approved by the Town's Consulting Engineer in writing. The Developer shall submit a Letter of Credit with an agreement in the Town's format. This shall be itemized in detail, shall follow the format of the "Letter of Credit summary sheet," and shall consist of, but not limited to, the following minimum items:

Earthwork and Erosion Control

1) Sediment and Erosion Control (installation and maintenance)

2) Silt barriers (installation and maintenance)

3) Grading and seeding

4) General Earthwork

5) Stormwater Management Facilities

6) Five-year Maintenance Agreement

Earthwork and Erosion Control – Total _____

Sanitary Sewers

1) Sewer pipes (including wye branches)
2) Sanitary manholes
3) Laterals (including clean outs)
4) Pump Stations (as applicable)
5) Connections to Dedicated Facilities

Sanitary Sewer Construction – Total _____

Storm Drainage

1) Storm sewer piping
2) Storm manholes
3) Catch basins
4) Drainage inlets
5) Laterals (including clean outs)
6) Flushing of storm sewer system
7) Stormwater Management Facility (including outlet control structure)
8) Connections to Dedicated Facilities

Storm Drainage Construction – Total . _____

Roadways for Dedication to the Town

1) Road excavation and box-out
2) Road base (including underdrain pipe & weep wedge)
3) Binder pavement
4) Top pavement
5) Stone/concrete curbing and gutters
6) Seeding within right-of-way (ROW)

Roadway Construction – Total _____

Miscellaneous

1) Restoration
2) Sidewalks, lawns and driveways
3) General landscaping including foundation plantings, street trees and lawns.
4) Excavation
5) Borings for utility installation
6) Open road cuts for utility installation
7) Street signs
8) Street lights
9) Property pins
10) Monuments
11) Other

Miscellaneous Construction – Total _____

TOTAL COST OF CONSTRUCTION _____

The estimate shall also include the following items and such other items that the Town may require:

- Total construction cost, all items
- Record drawings of dedicated improvements
- Five percent (5%) Engineering and Inspection fee
- Ten percent (10%) Contingency fee

The Engineer's "Estimate of Improvements" shall be submitted to the Town Engineer together with a copy of the subdivision and/or site plan for approval.
Costs associated with the item “Open road cuts for utility installation” shall be retained for a period of twelve (12) months after completion of the work before they will be released.

IRREVOCABLE LETTER OF CREDIT

No._____

Dated: _____

Town of Walworth
3600 Lorraine Drive
Walworth, New York 14568

Gentlemen:

We hereby open our irrevocable credit in your favor, available by your drafts at sight, and drawn on us for a sum not to exceed _____ ($_____) for the account of _____ (Developer), to be accepted by your signed statement, that drawing is due to the default or failure to perform by the Developer the following improvements on or before _____.

Acting through the Town of Walworth's Engineer, you will notify us when either:

1) The improvements have been timely and satisfactorily completed and the credit may be released, or

2) The Developer has failed to perform or is in default.

All drafts drawn under this Irrevocable Letter of Credit must be marked, "Drawn under _____ Bank, Irrevocable Letter of Credit Number_____, dated _____."

We hereby agree with the drawers, endorsers and bona fide holders of drafts under and in compliance with the terms of this credit, that the same shall be duly honored if presented on or before _____.

This Irrevocable Letter of Credit is subject to the Uniform Customs and Practice for Documentary Credits (1983 Revision), International Chamber of Commerce, and Brochure No. 400.

Very truly yours,

Duly Authorized Officer

EXHIBIT 'A1'

DEVELOPER'S AGREEMENT FOR LETTER OF CREDIT

AGREEMENT, made this _____ day of _____, _____ by and between the Town of Walworth, with its municipal offices located at 3600 Lorraine Drive, Walworth, New York 14568 (herein referred to as the "Town") and _____ with offices located at _____ (hereinafter referred to as the "Developer");

WITNESSETH:

WHEREAS, the Town has the obligation to provide for the orderly and proper development and use of land within the Town, including the planning, engineering, development and construction of facilities, such as, but not limited to, roads and roadways, sidewalks, water systems, sanitary systems and storm drainage systems, and

WHEREAS, the Developer has made application to the Town for the construction and development of _____
as more fully set forth in the approved site plan dated_____ for said project, which is incorporated herein by reference. The approved site map and Engineer's breakdown for said project are annexed hereto and made a part hereof and marked Exhibit "A"; and

WHEREAS, the Town has approved the project proposed by the Developer with certain conditions and requirements, which conditions and requirements are set forth in and made part of the various approvals and permits which have been issued by the Town;

NOW, THEREFORE, the parties hereto agree as follows:

1) The Developer agrees to supply all of the work, labor and services and to supply all of the materials necessary to complete the work described in Exhibit "A" attached hereto, all in conformity with the approvals previously granted by the Town and according to applicable standards and specifications adopted by the Town or by other governmental authorities having jurisdiction.

2) The Developer agrees to complete such work on or before _____. In the event that the work set forth in Exhibit "A" is to be completed in progressive stages, then such work shall be completed in accordance with the schedule set forth in said Exhibit "A", and each phase of such work shall be completed on or before the time set in Exhibit "A" for the completion of such phase.

3) In order to provide the Town with security for the faithful performance of this Agreement by the Developer, the Developer agrees to cause an Irrevocable Letter of Credit to be issued in favor of the Town by a bank or other financial institution, which is acceptable to the Town. Such Irrevocable Letter of Credit shall be in the form as specified in the Town's design criteria.

4) In the event the Developer shall encounter delays in the performance of work, the Developer shall promptly notify the Town Engineer of the cause of the delay, and shall apply for an extension of time for completion of the work. Such application for an extension of time must be accompanied by an Amendment of the previously issued Irrevocable Letter of Credit relating to such work, which Amendment shall extend the expiration date of such Irrevocable Letter of Credit for a period of one (1) additional year. All other items of the Irrevocable Letter of Credit shall remain the same.

5) In the event the Developer fails to satisfactorily perform the work described in Exhibit "A", in accordance with Town standards and specifications and in accordance with the approvals and permits previously granted by the Town, the Town shall give written notice of such failure to the Developer, by mailing a Notice of Deficiency to the address of the Developer as shown in this Agreement. Such notice shall specify the item or items of work, which have not been properly completed, and with respect to each item, shall indicate the nature of the deficiency. The Developer shall have a reasonable time, not to exceed fifteen (15) days, to properly perform by curing the deficiency identified in such Notice. An exact duplicate of said Notice of Deficiency shall be sent to the financial institution, which shall have previously issued an Irrevocable Letter of Credit in connection with the work.

6) Upon any failure of the Developer to complete the work within the time scheduled by the terms of this Agreement, or by the terms of any extension of time granted by the Town to the Developer, and/or upon the Developer's failure to correct and/or perform any work concerning which the Town has sent a Notice of Deficiency to the Developer in accordance with the provisions of Paragraph "5" of this Agreement, the Town shall have the right to issue a sight draft against all or a portion of the credit which shall have been provided in favor of the Town by the Irrevocable Letter of Credit issued in connection with such work. The Town shall draw such sight draft in an amount, which shall, in the Town's sole and absolute judgment, be sufficient to pay the cost of the completion of the work.

7) In the event that the Town shall exercise its right under the terms of this Agreement to draw against the Irrevocable Letter of Credit for the purpose of completing the work, the Town shall segregate all monies received under the terms of such Irrevocable Letter of Credit into an account which shall identify the Town as the custodian of the account for the purpose of completing the work. Thereafter, the Town shall cause the completion of the work, or so much thereof as may be completed by the monies so drawn under the terms of the Irrevocable Letter of Credit and this Agreement, and the Town shall pay for the materials, work, labor and services necessary to complete the work out of said account. Any monies remaining in the account after the payment of all expenses incurred by the Town in connection with the completion of the work (including expenses incurred in connection with the enforcement of this Agreement) shall be reimbursed to the Developer within sixty (60) days following the completion of the work and the payment of all such expenses by the Town. The Developer shall remain liable to the Town for any deficiency.

IN WITNESS THEREOF, the parties hereto have caused their corporate seals to be hereunto affixed, and this Agreement to be signed by the duly authorized officers this _____ day of _____, _____.

TOWN OF WALWORTH:

_____
SUPERVISOR

_____
DEVELOPER

STATE OF NEW YORK
WAYNE COUNTY

On this _____ day of _____, _____, before me personally came _____, to me personally known, who, being duly sworn, did depose and say that he/she resides in the Town of Walworth, New York, that he/she is the Supervisor of the Town of Walworth, the municipal corporation described in and which executed the above instrument, that he/she knows the seal of said municipal corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Town Board of said municipal corporation, and that he/she signed his/her name thereto by like order.

_____
NOTARY PUBLIC
STATE OF NEW YORK
WAYNE COUNTY

EXHIBIT 'A2'

DEVLOPER'S AGREEMENT FOR TRUST & AGENCY ACCOUNT

This agreement, made this _____ day of _____, _____ by and between the Town of Walworth, with its municipal offices located at 3600 Lorraine Drive, Walworth, New York 14568 (hereinafter referred to as the "Town") and _____ with offices located at _____(hereinafter referred to as the "Developer").

WITNESSETH:

WHEREAS, the Town has an obligation for the orderly and proper development and use of land within the Town; including the planning, engineering, development and construction of facilities, such as, but not limited to, roads and roadways, sidewalks, water systems, sanitary systems and storm drainage systems; and

WHEREAS, the Developer has made application to the Town for this construction and development of _____
as more fully set forth in the approved site plan dated _____ for said project, which is incorporated herein by reference. The Engineer's Estimate or other breakdown of costs for said project are annexed and hereto and made part hereof and marked Exhibit "A", and

WHEREAS, the Town has approved the project proposed by the Developer with certain conditions and requirements, which conditions and requirements are set forth in and made a part of the various approvals and permits, which have been issued by the Town;

NOW, THEREFORE, the parties hereto agree as follows:

1) The Developer agrees to supply all of the work, labor and services and to supply all of the materials necessary to complete the work described in Exhibit "A" in conformity with the approvals previously granted by the Town and according to applicable standards and specifications adopted by the Town or by other governmental authorities having jurisdiction.

2) In order to provide the Town with security for the faithful performance of this Agreement by the Developer, the Developer hereby submits a certified check, money order or cash for the completion of items as required by the Town of Walworth.

3) All work shall be completed in a manner and schedule as required by the Town of Walworth. Any delay in the completion of the work shall be requested in writing to the Town of Walworth Engineer for approval.

4) In the event the Developer fails to satisfactorily perform the work described in Exhibit "A", in accordance with Town standards and specifications in accordance with the approvals and permits previously granted by the Town, the Town shall give written notice of such failure to the Developer, by mailing a Notice of Deficiency to the address of the Developer as shown on this agreement. Such notice shall specify the item or items of work, which have not been properly completed, and with respect to each item, shall indicate the nature of the deficiency. The Developer shall have a reasonable time, as determined by the Town Engineer, to properly perform by curing the deficiency identified in such notice.

5) Upon any failure of the Developer to complete the work within the time scheduled by the terms of this Agreement, or by the terms of any extension of time granted by the Town to the Developer, and/or upon the Developer's failure to correct and/or perform any work concerning which the Town has sent a Notice of Deficiency to the Developer in accordance with the provisions of Paragraph "5" of this Agreement, the Town shall have the right to use the funds deposited with the Town to complete the work. The Town shall draw funds in an amount, which shall, in the Town's sole and absolute judgment, be sufficient to pay the cost of the completion of the required work. The Town shall pay for materials, work, labor and services necessary to complete the work out of said account. The Developer shall remain liable to the Town for any deficiency.

6) The Developer shall hold the Town harmless for any action undertaken by the Town on behalf of the Developer.

IN WITNESS WHEREOF, the parties hereto have caused their corporate seals to be hereunto affixed, and this Agreement to be signed by the duly authorized officers this _____ day of _____, _____.

TOWN OF WALWORTH

_____ _____
Date

DEVELOPER

_____ _____
Date

1.3.4 RELEASE OF FUNDS

At such times as the Developer and his Engineer wish to have funds released to cover work performed, the Developer's Licensed Professional Engineer shall prepare an estimate of the work performed as of that date. The estimate shall be in the same format and item breakdown as requested for the "Estimate of Improvements." **The Licensed Professional Engineer shall verify quantities with the Town's Field Inspector prior to a submission for release of funds.** A certification shall be signed on the release of funds form by either the Applicant or his Licensed Professional Engineer. In the event a release of funds is not in the Town's format, or attached to the Town's release of funds form, in triplicate, signed or not completely filled out correctly, the Town will reject the request for Release of Funds.

The Town may release from the Letter of Credit, upon satisfactory and approved installation of any utilities and facilities, up to eighty percent (80%) of the total items in the approved "Estimate of Improvements."

The ten percent (10%) retainage on releases and ten percent (10%) contingency for each item shall be held intact until final inspection and approval has been made and a two (2) year maintenance bond on dedicated facilities is provided to the Town by the Applicant in the amount of ten percent (10%) of the approved "Construction Total" for that item.

Minimum review time for processing requests for release of funds shall be ten (10) business days. Approved releases of funds are administratively processed to the Building Inspector or Code Enforcement Officer for approval. Thereafter, the Town Administrator notifies the bank in writing that an approved amount may be released from the Developer's Letter of Credit to the Applicant. The Town's financial responsibility is to the Applicant and not to the Contractor.

In the event that monies were provided through a certified check in lieu of the bank Letter of Credit, this money will be refunded to the Applicant after a properly executed Town voucher has been received.

Approval by Town officials for authorized periodic payments is not to be construed as acceptance of the work by the Town.

DEVELOPER'S FORMAT CERTIFICATION FOR RELEASE OF FUNDS
Sheet _____ of _____

ENGINEERING FIRM NAME: _____

PROJECT NAME: _____

PROJECT LOCATION: _____

CONTRACTOR: _____

DEVELOPER: _____

ESTIMATE NO.: _____DATE:_____

I, _____, certify that all work covered by this request for release of funds has been performed in accordance with the Town / Town's standards and specifications and in accordance with the approved site plan. Further, all quantities of materials and items indicated upon the attached sheets have been furnished and installed on the job.

_____
SIGNATURE

Must be signed by the Developer or Corporate Officer if Developer is a Corporation, or by Project's Licensed Professional Engineer.

FOR OFFICIAL USE ONLY – DO NOT WRITE IN THIS AREA

Amount in letter as established _____

Less amounts previously released _____

Less inspection fees previously charged _____

Amount in letter prior to this request _____

Amount approved this request _____

Amount of inspection fees currently charged _____

Amount remaining after this release _____

Amount approved this request $ _____

Amount of inspection fee currently charged $ _____

This total amount to be released $ _____

Has been reviewed and approved by:

_____ _____

AUTHORIZED OFFICIAL DATE
TOWN OF WALWORTH

1.3.5 EASEMENTS

The Applicant shall provide permanent easements to the Town for dedicated facilities located outside dedicated Town street rights-of-way. Easements shall also be provided for water, storm sewers and sanitary sewers on private property.

Easements shall be prepared prior to approval of the final site plan or subdivision plat. The applicant is responsible for the preparation of easement descriptions and maps, transfer of easements to the Town and recording in the Wayne County Clerk's Office.

The Town reserves the right to require easements for anticipated future facilities and streets where, in the opinion of the Town, such easements are necessary for planning future development of adjacent lands.

1.3.6 PRE-CONSTRUCTION MEETING

A pre-construction meeting shall be held after all approvals and signatures have been obtained on the plans and prior to the start of construction. This meeting is held to review the Town's requirements, the overall project plans and to establish the project schedule. The Applicant shall have in attendance his Engineer, Prime Contractor, Subcontractors and Representatives of all utility providers to discuss the project and schedule with the Superintendent of Public Works, Code Enforcement and Building Inspector, and the Town Consulting Engineer. The Developer shall provide the Town with the following prior to scheduling the pre-construction meeting:

- Six (6) sets of project plans with all approval signatures
- Irrevocable Letter of Credit and executed Agreement
- Three (3) sets of construction drawing reductions (11” x 17”)
- Copies of all required insurance certificates
- All required easements and descriptions with filing information
- Copies of all permits from regulatory agencies (NYSDOT, MCDOT, NYSDEC, etc.)

1.3.7 BUILDING PERMIT APPLICATION, BUILDING GUARANTEE AND CERTIFICATE OF OCCUPANCY

At the time of application for a building permit, all required fees including sewer connection and driveway entrance fees shall be paid. In addition, at this time, a minimum escrow deposit to the Town in the form of a certified check will be made for new residential construction or additions. Commercial and industrial construction or additions shall also supply a minimum escrow deposit to the Town in the form of a certified check. Current fee schedules are on file with the Town Clerk. Upon completion of structures and their required inspections and prior to issuance of the Certificate of Occupancy, the Fire Marshall, Building Inspector and Highway Superintendent shall determine that all of the following on-site improvements have been satisfactorily completed:

1) Driveway curb cuts properly installed.

2) Lot has been graded to ensure proper drainage away from structures and adjoining properties.

3) Repair of all sidewalks, curbs or streets, if damaged.

4) Sump pump drains and storm laterals properly installed and backfilled.

5) Road surface, curbs, and sidewalks clean and free of debris.

6) Curb boxes and/or cleanouts are properly adjusted to finish grades.

7) House numbers.

8) Mailbox placement.

If landscaping and an adequate stand of grass has not been completed at this time, the escrow monies will be retained until complete. If not completed within one (1) year of issuance of the Certificate of Occupancy, the Town will complete the remedial or landscape work and deduct the cost from the escrow account.

No Certificate of Occupancy will be issued until such time as all underground utilities have been installed, tested, accepted for operation, the proper required maintenance bond received by the Town, and the road base, binder, is complete and dedicated where applicable.

1.3.8 REQUIREMENTS FOR APPROVAL OF DEDICATION

1.3.8.1 Completion of Construction

Construction of all facilities to be dedicated shall be fully completed by the Applicant, inspected and found satisfactory by the Town.

1.3.8.2 Final Grading

Final grading, placing of topsoil and seeding shall be completed within the right-of-way and all excess material removed from the site.

1.3.8.3 Roads and Streets

Road and streets offered for dedication shall be completed to the placement of the binder course and shall stand for one (1) winter season prior to placement of the top course and acceptance by the Town.

Any agreement with the Town to maintain a road or street prior to dedication shall be made with the Highway Superintendent and is subject to review by the Town Attorney and approval by the Town Board. This agreement must include a two (2) year maintenance bond in the amount of ten percent (10%) of the final construction cost.

The Developer shall pay the appropriate filing fees for all documents to be recorded by the Town Attorney.

1.3.9 RECORD DRAWINGS

Prior to final acceptance of dedicated roads and utilities by the Town, the Applicant's Engineer shall submit to the Town a "record drawing" plan. This plan shall be certified by a Licensed Land Surveyor or Licensed Engineer, drawn to scale and shall locate by dimensions, angles and distances, as applicable, the location and Depths / Inverts / Top Elevations of the following: rights-of-way; easements; sanitary and storm sewers; wye branches; clean outs; lateral ends; manholes; and catch basins.

Record drawings shall be submitted to the Town by the Applicant's Engineer and shall consist of one (1) Mylar, five (5) print copies and one (1) digital copy in AutoCAD format (most current version) titled "Record Drawing."

1.3.9.1 Maintenance Bond

Upon acceptance of dedication by the Town of all proposed dedicated facilities, the Applicant shall provide a two (2) year maintenance bond in the amount of ten percent (10%) of the final construction costs of those facilities. This maintenance bond must be in place prior to the release of final monies left in the Letter of Credit.

1.3.9.2 Final Release of Funds

The Town Board will authorize the final release of funds in the Letter of Credit upon recommendation from the Town Engineer after receipt of a two (2) year maintenance bond on the dedicated facilities and the receipt of certified record drawings – A written statement from the Town's Receiver of Taxes stating that all taxes have been paid and a letter to the Supervisor requesting roadway or utility dedication.

If the required improvements are not completed within the period established or extended by the Town, the Letter of Credit may be declared in default and the Town may collect the amount payable thereafter. Upon receipt of such amount, the Town shall complete the improvements as covered by the Letter of Credit and are commensurate with the extent of construction that has taken place, however, not exceeding in cost the amount collected upon the Letter of Credit.

1.4 SITE PLAN PROCEDURES

1.4.1 APPROVAL REQUIRED

Prior to the issuance of a building permit or Certificate of Occupancy in all zoning districts, except accessory buildings incidental to customary agricultural operations and accessory residential structures, whether attached or detached from the residential structure, the Code Enforcement Officer or Building Inspector shall require the preparation of a site plan. The Code Enforcement Officer shall refer the applicant to the Board for site plan review and approval in accordance with § 274-a of the Town Law (except where inconsistent with this chapter) and the standards and procedures set forth in this chapter.

For one-lot, one-parcel, one-plot or one-site residential development, where the lot, parcel, plot or site is not a subdivided lot, parcel, plot or site, or was subdivided with or without formal subdivision approval or was subdivided pursuant to a waiver of normal subdivision procedure, site plans shall be reviewed and be subject to the approval of the Code Enforcement Officer, the Town Engineer and Building Inspector for review. The Code Enforcement Officer or Town Engineer, if either feels appropriate, may refer the site plan applicant to the Planning Board for site plan review and approval in accordance with provisions of this chapter.

For the amendment or modification of a one-lot, one-parcel, one-plot or one-site residential site plan which has been previously approved and where the applicant desires to amend or modify the site plan approval previously granted, the applicant shall make application to the Building Inspector for a building permit and said building permit shall be issued, provided:

- The proposed amendment or modification to the site plan does not increase the square footage of the building footprint set forth on the original site plan by more than forty percent (40%).

- The proposed amendment or modification to the site plan complies with all state, county and Town laws, rules and regulations.

1.4.2 PRE-APPLICATION SITE PLAN CONFERENCE

A pre-application site plan conference may be held between the Board and the site plan applicant prior to the preparation and submission of a formal site plan. The intent of such conference is to enable the applicant to inform the Board of his or her proposal prior to the preparation of a detailed site plan and for the Board to review the basic site plan concept, advise the applicant as to potential problems and concerns and to generally determine the information to be required on the site plan. In order to accomplish these objectives, the applicant should provide the following:

1) Statement and sketch plan showing the locations and dimensions of principal and accessory structures, parking areas, access signs (with descriptions), existing and proposed vegetation and other planned features and anticipated changes in the existing topography and natural features.

2) A map of the area of adequate scale which clearly shows the location of the site with respect to the nearby street rights-of-way, properties, easements and other pertinent features.

3) A topographical or contour map of adequate scale and detail to show site topography.

The site plan applicant may request in writing at any time that his or her application for the pre-application site plan conference be added to the agenda of a regularly scheduled Board meeting. His or her application shall be so added, provided that the request is submitted at least seven days prior to the requested regularly scheduled Board meeting.

1.4.3 APPLICATION FOR APPROVAL

An application for site plan approval, except as provided for herein, shall be in writing; accompanied by twelve (12) prints of a site plan; and certified by a Professional Engineer or Land Surveyor. The application must contain a statement setting forth the following:

1) Whether or not a hazardous waste site registered with the New York State Department of Environmental Conservation is located within a one-mile radius of the proposed development.

2) The impact of the development on the Town's sanitary sewer capacity, water supply capacity, drainage and traffic flow.

If the site plan applicant is not the record owner of the site, the application must include an affidavit from the record owner giving his or her consent to the application.

The following materials shall be submitted by the applicant:

1) A map of the applicant's entire holding at the scale of not more than one inch equals one hundred feet (1" = 100'), unless the Board determines a different scale more appropriate.

2) An area map at the scale of not more than one inch equals fifty feet, (1" = 50') showing all properties, subdivisions, streets, watercourses and easements which pass through the property or are known to abut the applicant's property.

3) A topographic map at a scale of not more than one inch equals fifty feet (1" = 50'), showing contours at intervals not greater than two-foot (2') intervals.

4) A site plan containing the following information is necessary to demonstrate conformance with standards for site plan approval:

    a) The title of the drawing including the name(s) and address(es) of the site plan applicant and owner of record.

    b) North point, date and scale.

    c) The name and address of the person, firm or organization preparing the map.

    d) Boundaries of the property plotted to scale.

    e) Existing watercourses and directions of drainage flow.

    f) A site plan showing the location of proposed use or uses, bulk and height of all buildings, and location of all parking areas with access drives thereto.

g) The location of all existing or proposed site improvements including:

- Drains, culverts, retaining walls and fences.
- Existing water and other utility facilities.
- Description of methods of sewage disposal and location of such facilities.
- Location and sizes of all permitted signs.
- Location and design of lighting facilities.
- The amount(s) of building area(s) proposed for retail sales, if any.
- Existing areas of vegetation and trees (in general, five inches or more in diameter or, if in significant clusters, those less than five inches).
- Wetland areas and flood plain locations shown on map with base flood elevations.

h) A tracing overlay showing areas, if any, with moderate to high susceptibility to flooding or ponding and moderate to high susceptibility to erosion and slopes in excess of fifteen percent (15%). For areas with potential erosion problems, the overlay shall also include an outline of existing vegetation.

i) A grading plan showing the existing and proposed elevation of site.

j) Landscape plan and planting schedule.

k) Architectural plans of all proposed commercial and industrial buildings, structures, signs and outdoor illumination facilities, unless otherwise provided in connection with the site plan, as applicable to the particular application, which plans may be preliminary in form but shall include exterior elevation drawings, floor plans and perspective drawings in sufficient detail to indicate the exterior building materials, color, height, bulk, stories, roofline, ornamentation and general characteristics and the interior uses of the floor area, all prepared, except the drawings for signs, by an architect or professional engineer licensed to practice in the State of New York; three (3) copies shall be submitted. All revisions shall be numbered, dated and noted.

Section 2
Design Criteria

2.1 GENERAL

The intent of these regulations is to assure that all infrastructure and facilities to be dedicated to the Town for maintenance shall be constructed as to result in a minimum of maintenance and a maximum of benefits to the Town of Walworth. Failure of the Developer, their agents, employees or subcontractors to comply shall be considered sufficient cause by the Town to not accept the infrastructure of any portion thereof for dedication until all work is completed to the terms set forth herein.

The development of land shall conform to the Zoning Regulations established and recorded in the *Code of the Town of Walworth*. It shall also conform with all appropriate laws, rules and regulations established by all governing bodies having jurisdiction over the various phases of the development (i.e., New York State Department of Health).

Where these standards impose greater restrictions than are imposed by the provisions of any law, ordinance, regulation or private agreement, these standards shall control. Where any law, ordinance, regulation, or private agreement imposes greater restrictions than are imposed by these standards, such greater restrictions shall apply.

Where a conflict arises between these regulations and those of other agencies, the Applicant shall make known to the conflicting agencies the area of disagreement and endeavor to have such agencies resolve their differences before proceeding with development.

The term “infrastructure” as used herein shall be defined as roads, street lights, water mains, sidewalks, stormwater and sanitary sewers, pump stations, ditches, culverts, ponds and appurtenances thereto which will, upon acceptance by the appropriate Town/Town Officials, be turned over to the Town for maintenance and operation.

2.2 REFERENCES TO OTHER SPECIFICATIONS

References to other standards and specifications shall mean that the applicable portions thereof shall be followed as if the specifications were actually incorporated in these standards. It shall be understood that such references shall be to the latest edition or revision thereof including all addenda.

2.3 RESPONSIBILITY FOR DESIGN

Applicants are responsible for providing sound engineering design of all facilities subject to review and approval by the Town. The design shall be prepared by a Professional Engineer, Architect or "N" exempted Land Surveyor licensed to practice in the State of New York and who has experience in the design of such facilities.

Design information, engineering reports, plans and specifications shall provide the information required by these standards and any additional information that may be required by the Town. Boundary surveys shall be performed and certified by a New York State Licensed Land Surveyor.

2.4 SITE DESIGN

2.4.1. GENERAL

In acting on any proposed site plan application, the Planning Board shall take into consideration the requirements of the Comprehensive Plan as well as the Official Map, as it may be adopted by the Town Board. Site plans shall conform to all other provisions of § 274-a of the Town Law (except where inconsistent with this chapter) and the Town Construction Specifications and Design Standards. Editor's Note: The Construction Specifications shall be on file in the office of the Town Clerk for examination during regular business hours.

2.4.2. NEIGHBORHOOD

The site plan and architectural plan shall be of a character as to harmonize with the neighborhood, to accomplish a transition in character between areas of unlike character, to protect property values and to preserve and enhance the appearance and beauty of the community.

2.4.3 EXISTING TREES

All existing trees twelve inches (12”) or greater in diameter shall be identified by size and type. Refer to Town Code Section 151-41 with regard to preservation of natural features.

2.4.4. ACCESS AND CIRCULATION

Provision shall be made for vehicular access to the lot and circulation upon the lot in such a manner as to safeguard against hazards to traffic and pedestrians in the street and upon the lot, to avoid traffic congestion on any street and to provide safe and convenient circulation upon the lot. Access and circulation shall also conform to the following:

1) Where reasonable alternative access is available, the vehicular access to the lot shall be arranged to avoid commercial traffic use of local residential streets situated in or bordered by residential districts.

2) Where a lot has frontage on two or more streets, the access may be limited to one street if the Planning Board feels such limitation is necessary to lessen potential for traffic congestion and hazards to traffic and pedestrians.

3) The street giving access to the lot shall have traffic-carrying capacity, roadway improvements and traffic management facilities that are sufficient to accommodate the amount and types of traffic generated by the proposed use, taking into account access to existing uses along the street and existing traffic projected to the date of occupancy of the site. Roadway, traffic management and other deficiencies in the street giving access, which result in congestion or impairment of safety and convenience, may be remedied by the applicant if authorized by the owner of the street.

4) Where necessary to safeguard against hazards to traffic and pedestrians and/or to avoid traffic congestion, provision shall be made for turning lanes, traffic directional signals, frontage road driveways and traffic controls within the street.

5) Access driveways shall be of a design and have sufficient capacity to avoid queuing of entering vehicles within any street.

6) Driveways into the lot shall not exceed a grade of ten percent (10%) and shall meet the street line and travel way of the street with proper transition grades and sight lines for safe, convenient and efficient access and in such a manner as to conform to the established cross section for the street.

7) Where topographic and other conditions are reasonably usable, provision may be made for circulation driveway connections to adjoining lots of similar existing or potential use when such driveway connection will facilitate fire protection services and/or when such driveway will enable the public to travel between two existing or potential uses open to the public generally without need to travel upon a street.

8) Generally, there may be no more than one driveway connection from any lot to any road or street. Exceptions will be considered, as required, to address a hazardous or traffic-related situation.

2.4.5 EXISTING STREETS

Where the lot has frontage on an existing street, proper provision shall be made for grading and improvement of shoulders and sidewalk areas within the right-of-way of the street and for provision of curbs and sidewalks in accordance with the pattern of development along the street. Where necessary to provide for suitable access or for a system of neighborhood circulation streets, provision shall also be made for appropriate continuation and improvement of streets terminating at the lot where the use is to be located.

2.4.6 PARKING AND LOADING

Off-street parking and truck loading spaces shall be provided in accordance with the Town Construction Specifications and Design Standards. Editor's Note: The Construction Specifications shall be on file in the office of the Town Clerk for examination during regular business hours. Whenever possible, area on the lot shall be provided for any truck maneuvering necessary to use off-street truck loading spaces. Truck loading spaces and maneuvering areas shall have dimensions sufficient to accommodate the type and size of truck expected at the premises.

2.4.7 DRAINAGE

Provision shall be made on the lot for the management of stormwater including collection, detention, retention and disposal thereof, in the following manner:

1) To assure the usability of off-street parking and loading spaces.

2) To avoid hazards to pedestrians and vehicular traffic on the lot and in any street.

3) To avoid stormwater flow across sidewalks and other pedestrian ways.

4) To protect watercourses and wetlands from pollution, erosion and sedimentation.

5) To avoid an amount of discharge and time of concentration of flow beyond the capacity of downstream drainage channels.

6) To avoid downstream flooding.

7) Provide rear and side yard field inlets anyplace there are hills or large drainage areas.

8) Lot grading shall be designed to provide for a positive outlet of water if yard/field inlets become blocked.

Provision shall also be made for on-site detention, retention or recharge for the protection or improvement of existing watercourses, channels, floodways and other drainage systems, on the lot or downstream from the lot, as needed to accept or regulate the proposed drainage discharge, based on sound design criteria under good engineering practice, taking into account the drainage requirements of the entire watershed in which the lot is located.

Conform with the Town Code to “Prohibit Illicit Discharges, Activities and Connections to Separate Storm Sewer System.”

2.4.8 SOIL EROSION AND SEDIMENT CONTROL

Provision shall be made for soil erosion and sediment control prior to commencement of construction and during and upon completion of construction in accordance with the Town's Design Standards and Construction Specifications.

Comply with the Town Code for “Stormwater Management and Erosion Control and Sediment Control”. The Construction Specifications shall be on file in the office of the Town Clerk for examination during regular business hours.

2.4.9 WETLANDS AND WATERCOURSES

Where wetlands and/or watercourses are located on or adjacent to the lot, provision shall be made for their protection in a natural state, unless modification is approved by the Town Board and, when subject to regulatory jurisdiction by a town, county, state or federal agency, is approved by such agency prior to site plan approval.

2.4.10 SPECIAL FLOOD HAZARD AREAS

When any part of the lot is located within an area of special flood hazard, the site plan shall conform to the requirements of Chapter 88, Flood Damage Prevention.

2.4.11 FIRE PROTECTION

Proper provision shall be made for fire protection facilities and access, taking into account any recommendations of the Chief of the Fire Department serving the proposed development and including the following:

1) Suitable location for and access to fire hydrants and/or fire ponds and other water storage.

2) Suitable access to buildings and open storage areas for operation of fire protection vehicles and equipment. (Based on New York State Fire Code).

3) Sufficient controls on traffic and parking to permit access by fire protection vehicles in emergencies.

4) Adequate circulation driveways within the lot, coordinated with access to other lots, to permit access by fire protection vehicles.

2.4.12 SANITATION

Provision shall be made for water supply, sewage disposal, control of wastes and protection of water quality in accordance with the following criteria:

1) Proper provision shall be made for the water supply and sewage disposal requirements of the proposed use. When on-site systems are to be used, such systems shall be designed and constructed in accordance with applicable county and/or state law, and the design concept and layout for such systems shall be approved by Wayne County or New York State departments and agencies, if required, prior to approval of the site plan. Approval of the site plan may be conditioned upon such department's or agency's approval of the final design of the system.

2) Proper provision shall be made for the collection, storage and disposal of solid and liquid wastes accumulated in connection with the proposed use and for control of litter by means of receptacles, fences, programs for site maintenance and cleaning, and other means approved by the Planning Board.

3) The site plan shall demonstrate how any toxic or hazardous substances are to be managed in accordance with applicable law so as to avoid danger to the public health and degradation of surface waters, groundwaters and wetlands.

4) Proper provision shall be made for any aboveground or in-ground storage of fuels and deicing salts and chemicals in a manner that protects groundwater aquifers having potential for significant water supply.

2.4.13 LANDSCAPING

Landscaping shall be provided and permanently maintained on the lot to conform to the standards of the Town Construction Specifications and Design Standards. Refer to Design Standards for the particular requirements of this chapter and the following:

1) All areas of the lot not covered by buildings and other structures, open storage and approved paving shall be suitably landscaped with trees and/or shrubs, lawns or other suitable landscaping or shall be left as natural terrain, if not disturbed by filling, grading or excavation.

2) Landscaping, including grading, provided in the front yard area of the lot, shall be of a type, size and height as to avoid obstruction of minimum sight lines along the street as well as from access driveways onto the street, whether the driveway is located on the lot or any other lot, in accordance with the standards of the New York State Department of Transportation.

2.4.14 LIGHTING

The location, height, design, direction and brightness of outdoor illumination (area lighting, floodlighting and illumination of signs) shall be arranged and maintained as follows:

1) To provide sufficient illumination for safety, convenience and security.

2) To minimize sky glow.

3) To safeguard against discomfort glare and visibility veiling glare in any street and upon pedestrian ways and vehicular parking, loading and circulation areas on the lot where located or any other lot.

4) To harmonize with the neighborhood and avoid trespass illumination on any other lot.

2.4.15 SIGNS

Any signs to be established on the lot shall be part of the site plan submission and shall conform to the standards of Chapter 180-40 - Zoning, and the Town Construction Specifications and Design Standards. The Construction Specifications shall be on file in the office of the Town Clerk for examination during regular business hours. Refer to Design Standards for the design standards. In lieu of specific sign proposals in connection with the site plan submission, the applicant may submit and the Board may approve a general sign plan and program for the premises specifying intended locations, sizes, areas, message, design and illumination.

2.4.16 BUILDINGS AND STRUCTURES

Buildings and other structures shall have an exterior design to harmonize with the surrounding neighborhood. The exterior walls of any building that are visible from any street or any other lot shall present a finished appearance by means of materials consistent with the design of the building as a whole. Mechanical equipment, including alternative energy sources, shall not, without prior approval from the Planning Board, be located on the roof of a building if visible from any street, unless deemed compliant with Town Alternative Energy Laws.

2.5 SANITARY SEWER SYSTEM

2.5.1 GENERAL

The design criteria herein included shall be used in conjunction with the *Code of the Town/Town of Walworth and Wayne County Water and Sewer Authority.*

2.5.2 STANDARDS

Design shall conform to the following standards, supplemental and superseded by additional requirements as follows:

2.5.2.1 *Recommended Standards for Sewerage Works*, Great Lakes – Upper Mississippi River Board of State Sanitary Engineers (10 State Standards).

2.5.2.2 Materials shall be in accordance with Section 3 – Construction Standards and construction shall conform to Section 4 – Standard Details.

2.5.2.3 Those criteria as established by the New York State Department of Environmental Conservation.

2.5.3 SEWER DESIGN

2.5.3.1 Sewer mains shall be eight-inch (8") diameter minimum at a minimum slope of forty-five-hundredths percent (0.45%) unless otherwise approved by the Planning Board.

2.5.3.2 Depths of sewers shall be sufficient to serve basements of all homes within the development, unless otherwise approved by the Planning Board.

2.5.3.3 Manholes shall be spaced at intervals not greater than three hundred feet (300').

2.5.3.4 The minimum inside diameter of manholes shall be forty-eight inches (48") for eight-inch (8") through twelve-inch (12") sewers and sixty inches (60") for sewers larger than twelve inches (12") and all three-way manholes.

2.5.3.5 A minimum of 0.1-foot (0.1') drop and a maximum of one and a half foot (1.5') drop shall be provided within the manholes. Any drop greater than one and a half feet (1.5') shall be achieved through the use of a drop connection.

2.5.3.6 Building sewers for commercial buildings shall be six-inch (6") diameter minimum at a minimum slope of one percent (1%) grade (1/8" per foot).

2.5.3.7 Cleanouts shall be provided for building sewers at all horizontal bends, on the right-of-way or easement line and at a maximum distance of seventy-five (75') feet. Laterals must extend ten feet (10') beyond the cleanout.

2.5.3.8 A vertical separation of a minimum of two feet (2') shall be provided between parallel sanitary and storm sewers to provide clearance for the satisfactory installation of storm and sanitary laterals.

2.5.3.9 The invert/benchwall of a three-way manhole will have a minimum radius equal to one half the diameter of the manhole. Ninety-degree (90°) "T" invert intersections will not be acceptable.

2.5.3.10 Laterals should not be installed at depths greater than ten feet (10') below finished grade. In the event the sanitary sewer main is greater than ten feet (10') deep, a lateral riser shall be installed to bring the lateral to the ten-foot (10') maximum depth.

2.5.4 LIFT STATIONS

Specific geographic and/or topographic areas may require the use of sewage lift stations to transmit contributory flows to a trunk sewer system. Once the location of the Sewage Lift Station has been determined, the Developer's Engineer shall prepare an Engineering Report that identifies the following design parameters:

- Anticipated flow rates (initial and full build out)
- Total Static Head
- Total Dynamic Head (TDH)
- Net positive suction head required
- Net positive suction head available
- System curve
- Pump performance point
- Anticipated storage time based on average and peak flows including corresponding liquid level elevations related to the lowest floor.
- Anticipated cycle times per hour (initial and full build out)
- Map of design service area and any other lands that are tributary to the pump station.
- Demonstrate the ability of the pump station to be upgraded for future expansion.

The report shall be accompanied by a utility plan and profiles, which relate all pump station appurtenances to the proposed development as a whole, including any offsite force main locations and all easements.

Lift stations shall incorporate the following design requirements:

- Compliance with Design Criteria of the New York State Department of Environmental Conservation and the Department of Health, and the applicable sections of the 10 State Standards.

- Pumps shall be an above grade suction pump.

- Provision of an audible high-water alarm system and a telemetering system connected to Town facilities.

- Provision for emergency power supply shall be provided. This will be an electrical generator, which operates on natural gas and shall be of a size suitable to operate all electrical equipment associated with the lift station.

- Elapsed time meters shall be provided on the motors to determine quantity of flow being pumped from the station.

- Permanent pump stations shall consist of reinforced concrete chambers with control equipment located in above-grade insulated, heated enclosures approved by the Sanitation Superintendent.

2.5.5 GREASE, OIL AND SOLIDS; SEPERATOR TRAPS

2.5.5.1 The Applicant shall read and comply with the provisions of the Sewer Use Ordinance in the *Code of the Town of Walworth and New York State Plumbing Code*.

2.5.5.2 Grease, oil and sand interceptors shall be provided when, in the opinion of the Sanitation Superintendent and Town Engineer, they are necessary for the proper handling of liquid wastes containing grease in excessive amounts, any flammable wastes, sand or other harmful ingredients. Interceptors shall not be required for residential or dwelling units.

Oil separators and grease traps shall be installed in all new and existing commercial and industrial sewer connections as deemed necessary by the Sanitation Superintendent and New York State Plumbing Code combined.

2.5.5.3 The separator unit shall be so designed as to stop the discharge of flow from the fixture(s) it serves when the separator becomes filled with grease or solids. No separator bypass will be permitted.

2.5.5.4 All separators shall be sized and installed according to the manufacturer's requirements. Catalog cuts, design and installation information from the manufacturer and the Applicant's Engineer shall be supplied to the Town Engineer and Building Department at the time of application.

2.5.5.5 The separator unit shall be so located as to be readily and easily accessible for cleaning and inspection. Removal of accumulated grease and sludge shall be carried out at intervals as recommended by the manufacturer. The Applicant shall maintain the separator in proper and efficient operating condition. All wastes removed from the separator shall be disposed of in a legal, acceptable manner and shall not be introduced into any sewer drainage system.

2.5.5.6 A maintenance instruction plate for the separator shall be permanently attached to the access cover of the separator or immediately adjacent thereto, thus assuring that anyone may easily be instructed as to the proper maintenance of the separator.

2.5.6. DESIGN REQUIREMENTS AND REQUIRED APPROVALS

New sanitary sewers and all extensions to sanitary sewer owned and operated by the Town shall be designed by a professional licensed to practice sewer design in the state in accordance with the Recommended Standards for Sewage Works as adopted by the Great Lakes - Upper Mississippi River Board of State Sanitary Engineers (Ten State Standards) and in strict conformance with all requirements of the NYSDEC. Plans and specifications shall be submitted to and written approval shall be obtained from the Superintendent, the Town Planning Board and the NYSDEC before initiating any construction. The design shall anticipate and allow for flows from all possible future extensions or developments within the immediate drainage area.

2.5.7 TREATMENT PLANT DESIGN

Compliance with the Act required. All users of the Town POTW will comply with all standards and requirements of the Act and standards and requirements promulgated pursuant to the Act.

2.5.7.1 General Prohibitions

No user shall contribute or cause to be contributed, in any manner or fashion, directly or indirectly, any pollutant or wastewater which will interfere with the operation or performance of the POTW. These general prohibitions apply to all such users of a POTW whether or not the user is subject to national categorical pretreatment standards or any other national, state or local pretreatment standards or requirements.

Without limiting the generality of the foregoing, a user may not contribute the following substances to the POTW:

1) Any solids, liquids or gases, which by reason of their nature or quantity, are or may be sufficient, either alone or by interaction with other substances, to cause a fire or an explosion or be injurious, in any way, to the POTW or to the operation of the POTW. At no time shall two successive readings on a flame-type explosion hazard meter, at the point of discharge into the system (or at any other point in the system), be more than twenty-five percent (25%) nor any single reading be more than forty percent (40%) of the lower explosive limit (LEL) of the meter. Unless explicitly allowable by a written permit, prohibited materials include, but are not limited to, gasoline, kerosene, naphtha, benzene, toluene, xylene, ethers, alcohols, carbides, hydrides and sulfides and any other substance which the town, the state or the EPA has determined to be a fire hazard or hazard to the POTW.

2) Solid or viscous substances which may cause obstruction to the flow in a sewer or otherwise interfere with the operation of the wastewater treatment facilities. Unless explicitly allowable by a written permit, such substances include, but are not limited to, grease, garbage with particles greater than one-half inch (1/2") in any dimension, animal guts or tissues, paunch manure, bones, hair, hides or fleshings, entrails, whole blood, feathers, ashes, cinders, sand, spent lime, stone or marble dust, metal, glass, straw, shavings, grass clippings, rags, spent grains, spent hops, wastepaper, wood, plastics, gas, tar asphalt residues, residues from refining or processing fuel or lubricating oil, mud or glass grinding or polishing wastes.

3) Any wastewater having a pH less than 5.0 or greater than 10.0, unless the POTW was specifically designed to manage such wastewater, or wastewater having any other corrosive property capable of causing damage or hazard to structures, equipment and/or POTW personnel.
4) Any wastewater containing toxic pollutants in sufficient quantity, either singly or by interaction with other pollutants (including heat), to injure or interfere with any wastewater treatment process, constitute a hazard to humans or animals, create a toxic effect in the receiving waters or the POTW or to exceed the limitation set forth in a categorical pretreatment standard. A toxic pollutant shall include, but not be limited to, any pollutant identified pursuant to Section 307(A) of the Act.

5) Any noxious or malodorous solids, liquids or gases which either singly or by interaction with other wastes, are sufficient to create a public nuisance or a hazard to life or are sufficient to prevent entry into the sewers for their maintenance or repair.

6) Oils and grease. Any commercial, institutional or industrial wastes containing floatable fats, waxes, grease or oils or which fats, waxes, grease or oils become floatable when the wastes cool to the temperature prevailing in the wastewater at the POTW treatment plant during the winter season. Any commercial, institutional or industrial wastes containing more than 100 mg/l of emulsified oil or grease or any substances that will cause the sewage to become substantially more viscous, at any seasonal sewage temperature in the POTW.

7) Any substance that will cause interference or pass-through.

8) Any wastewater with objectionable color that is not removed in the treatment process, such as, but not limited to, dye wastes and vegetable tanning solutions.

9) Any solid, liquid, vapor or gas having a temperature higher than 65° C. (150° F.), however, such materials shall not cause the POTW treatment plant influent temperature to be greater than 40° C (104°F). The Superintendent reserves the right, in certain instances, to prohibit wastes at temperatures lower than 65° C.

10) Unusual flow rate or concentration of wastes, constituting slugs, except by industrial wastewater permit.

11) Any wastewater containing any radioactive wastes, except as approved by the Superintendent and in compliance with applicable state and federal regulations.

12) Any wastewater which causes a hazard to human life or which creates a public nuisance, either by itself or in combination, in any way, with other wastes.

2.5.7.2 Concentration-based Limitations

No person shall discharge, directly or indirectly, into the POTW wastewater any of the following substances in concentrations exceeding those specified in the following table on either a daily or an instantaneous basis, except by permit or as provided for in this section. Concentration limits are applicable to wastewater effluents at a point just prior to discharge into the POTW (end of pipe concentrations).

Effluent Concentration Limit

Substance[1]	Allowable Average Daily[2] (mg/l)	Allowable Maximum Instantaneous[3] (mg/l)
Aluminum	0.6	1.2
Antimony	0.4	0.8
Arsenic	0.2	0.4
Barium	4	8
Beryllium	0.4	0.8
Bismuth	0.4	0.8
Bromine	4	8
Cadmium	0.4	0.8
Chlorides	500	750
Chlorine	5	10
Chromium (hex)	0.2	0.4
Chromium (tot)	4	8
Cobalt	0.8	1.6
Color	20	35
Copper	0.8	1.6
Cyanide (complex)	1.6	3.7
Cyanide (free)	0.4	0.8
Fluorides	4	8
Gold	0.2	0.4
Iodine	4	8
Iron	0.6	1.2
Lead	0.2	0.4
Manganese	4	8
Mercury	0.2	0.4
Molybdenum	4	8
Nickel	4	8
Phenols, total	4	8
Selenium	0.2	0.4
Silver	0.2	0.4
Sulfates	500	750
Sulfides	6	12
Tin	0.6	1.2
Titanium	0.6	1.2
Vanadium	4	8
Zinc	1.2	2.4

NOTES:
[1]Except for chromium (hex), all concentrations listed for metallic substances shall be as total metal, which shall be defined as the value measured in a sample acidified to a pH value of two or less, without prior filtration.
[2]As determined on a composite sample taken from the user's daily discharge over a typical operational and/or production day.
[3]As determined on a grab sample taken from the user's discharge at any time during the daily operational and/or production period.

Other substances, which may be limited, include:

1) Antibiotics.

2) Chemical compounds which, upon acidification, alkalization, oxidation or reduction, in the discharge or after admixture with wastewater and its components in the POTW, produce toxic, flammable or explosive compounds.

3) Pesticides, including algaecides, fungicides, herbicides, insecticides and rodenticides.

4) Polyaromatic hydrocarbons.

5) Viable pathogenic organisms from industrial processes or hospital procedures.

2.5.7.3 Mass Discharge-based Limitations

At no time shall the influent to the POTW contain quantities in excess of those specified below:

Substance	**Allowable Influent Loading Average Daily (pounds per day)**
Aluminum	0.5
Antimony	0.33
Arsenic	0.167
Barium	3.36
Beryllium	0.33
Bone	0.25
Cadmium	0.336
Chromium (hex)	0.167
Chromium (total)	3.34
Cobalt	0.67
Copper	0.672
Cyanide (complex)	1.344
Cyanide (free)	0.336
Gold	0.167
Iron	0.5
Lead	0.167
Mercury	0.167
Nickel	3.34
Phenols (total)	3.34
Selenium	0.167
Silver	0.167
Suspended solids	0.25
Tin	0.5
Zinc	1.001

2.5.7.4 Permits

The Superintendent shall issue permits to significant industrial users limiting the discharge of the substances noted in the previous table. Each permit shall restrict the discharge from each significant industrial user to a portion of the total allowable influent loading. In determining what portion of each substance that each significant industrial user shall be allowed to discharge, the Superintendent shall consider:

a) The quantities of each substance that are uncontrollable because they occur naturally in wastewater.

b) The quantities of each substance that are anthropogenic but are nonetheless uncontrollable.

c) Historical discharge trends.

d) Past pollution control efforts of each significant industrial user as compared to other significant industrial dischargers of the same substance.

e) Potential for growth in the POTW service area.

f) Potential for more restrictive regulatory requirements to be placed on the POTW discharge, sludge disposal or sludge reuse method.

g) Treatability of the substance.

The Superintendent shall apply a safety factor of fifteen percent (15%) protective of the POTW. All samples of influent loads to the POTW must be tested by a laboratory certified by the New York State Department of Health. Permits issued in accordance with this section may allow for discharges in excess of limitations set forth in these design criteria.

2.5.7.5 Modification of Limitations

Limitations on wastewater strength or mass discharge contained in this Section 2 may be supplemented with more stringent limitations when, in the opinion of the Superintendent,

1) The limitations of Town Criteria are not sufficient to protect the POTW.

2) The limitations of Town Criteria are not sufficient to enable the POTW treatment plant to comply with applicable water quality standards or the effluent limitations specified in the POTW's SPDES permit.

3) The POTW sludge will be rendered unacceptable for disposal or reuse as the Town desires as a result of discharge of wastewaters at the aforementioned concentration limitations.

4) Municipal employees or the public will be endangered.

5) Air pollution and/or groundwater pollution will be caused.

The limitations on wastewater strength or mass discharge shall be recalculated no less than once every five years. The results of these calculations shall be reported to the Town Board. This Section 2 shall then be amended appropriately. Any issued industrial wastewater discharge permits which have limitations, based directly on any limitations which were changed, shall be revised and amended as appropriate.

2.5.7.6 Dilution

Except where expressly authorized to do so by an applicable pretreatment standard, no user shall ever increase the use of process water or, in any other way, attempt to dilute a discharge as a partial or complete substitute for adequate treatment to achieve compliance with a pretreatment standard.

Dilution flow shall be considered to be inflow.

2.5.7.7 Application for Wastewater Discharge Permit

Industrial users required to obtain a wastewater discharge permit shall complete and file with the Superintendent an application in the form prescribed by the Town. The application shall be accompanied by a fee, as may be established by resolution of the Town Board. In support of any application, the industrial user shall submit, in units and terms appropriate for evaluation, the following information:

1) Name, address and location (if different from the address).

2) SIC code of both the industry and any categorical processes.

3) Wastewater constituents and characteristics, including but not limited to those mentioned and which are limited in the appropriate categorical standard as determined by a reliable analytical laboratory approved by the New York State Department of Health. Sampling and analysis shall be performed in accordance with standard methods.

4) Time and duration of the discharge.

5) Average daily peak wastewater flow rates; including daily, monthly and seasonal variations, if any.

6) Site plans, floor plans, mechanical and plumbing plans and details to show all sewers, sewer connections and appurtenances.

7) Description of activities, facilities and plant processes on the premises including all materials that are or could be discharged to the POTW.

8) Each product produced by type, amount, process or processes and rate of production.

9) Type and amount of raw materials processed (average and maximum per day).

10) Number and type of employees, hours of operation and proposed or actual hours of operation of the pretreatment system.

11) The nature and concentration of any pollutants in the discharge which are limited by any county, state or federal standards and a statement whether or not the standards are being met on a consistent basis and, if not, whether additional operation and maintenance (O and M) and/or additional pretreatment is required for the user to meet all applicable standards.

12) If additional pretreatment and/or O and M will be required to meet the standards, then the industrial user shall provide the shortest schedule to accomplish such additional treatment and/or O and M. The completion date in this schedule shall not be longer than the compliance date established for the applicable pretreatment standard. The following conditions shall apply to this schedule:

    a) The schedule shall contain progress increments in the form of dates for the commencement and completion of major events leading to the construction and operation of additional pretreatment required for the user to meet the applicable pretreatment standards. Such events include hiring an engineer, completing preliminary plans, completing final plans, executing contracts for major components, commencing construction, completing construction, beginning operation and beginning routine operation.

    b) No increment referred to in (12)(a) above shall exceed nine months nor shall the total compliance period exceed eighteen months.

c) No later than fourteen calendar days following each date in the schedule and the final date for compliance, the user shall submit a progress report to the Superintendent, including as a minimum, whether or not it complied with the increment of progress, the reason for delay and the steps being taken by the user to return to the established schedule. In no event shall more than nine months lapse between such progress reports to the Superintendent.

13) Any other information as may be deemed necessary by the Superintendent to evaluate the permit application.

The Superintendent will evaluate the data furnished by the industrial user and may require additional information. After evaluation and acceptance of the data furnished, the Town may issue a wastewater discharge permit subject to terms and conditions provided herein.

2.5.7.8 Permit Conditions

Wastewater discharge permits shall be expressly subject to all the provisions of this Section 2 and all other applicable regulations, user charges and fees established by the Town. Permits may contain the following:

1) Limits on the average and maximum rate and time of discharge or requirements for flow regulation and equalization.

2) Limits on the average and maximum wastewater constituents and characteristics, including concentration or mass discharge limits.

3) The unit charge or schedule of user charges and fees for the management of the wastewater discharged to the POTW.

4) Requirements for installation and maintenance (in safe condition) of inspection and sampling facilities.

5) Specifications for monitoring programs, which may include sampling locations, frequency of sampling, number, types and standards for tests and reporting schedules.

6) Compliance schedules.

7) Requirements for submission of technical reports or discharge reports.

8) Requirements for maintaining and retaining plant records relating to wastewater discharge as specified by the Town and affording the Superintendent access thereto.

9) Requirements for notification of the Town of any new introduction of wastewater constituents or of any substantial change in the volume or character of the wastewater constituents being introduced into the POTW.

10) Requirements for the notification of the Town of any change in the manufacturing and/or pretreatment process used by the permittee.

11) Requirements for notification of excessive, accidental or slug discharges.

12) Other conditions as deemed appropriate by the Town to ensure compliance with this Section 2, state and federal laws, rules and regulations.

2.6 STORM DRAINAGE SYSTEM

2.6.1 GENERAL

All development projects shall be required to provide for the adequate conveyance of storm drainage through the development. The natural drainage patterns are to be followed as much as possible. Drainage systems shall be sized to accommodate the future potential runoff based on the probable land use and the ultimate development of the upland watershed area. Runoff from streets, lawns, paved areas and roof areas shall be used in the design of the facilities. Full engineering attention 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.

2.6.2 STANDARDS

Design of drainage facilities shall conform to the following standards supplemented and superseded by additional requirements as listed:

2.6.2.1 ASCE Manual of Engineering Practice No. 37, *Design and Construction of Sanitary and Storm Sewers*, American Society of Civil Engineers.

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

2.6.2.3 *New York Guidelines for Urban Erosion and Sediment Control*, USDA – Soil Conservation Service.

2.6.2.4 Town Code sections “Prohibit Discharges, Activities and Connection to Separate Storm Sewer Systems” and the Stormwater Management and Erosion and Sediment Control.

2.6.2.5 New York State Standards and Specifications for Erosion and Sediment Control, New York State Department of Environmental Conservation, August 2005.

2.6.2.6 New York State Stormwater Management Design Manual, New York State Department of Environmental Conservation.

2.6.2.7 Materials shall be in accordance with Section 3 – Construction Standards.

2.6.2.8 Manholes shall be spaced at intervals not greater than three hundred feet (300').

2.6.2.9 Minimum size of storm sewers shall be twelve-inch (12") diameter pipe, except as otherwise permitted by these Standards.

2.6.2.10 Minimum velocity in storm sewers shall be three feet (3') per second when flowing at design requirements.

2.6.2.11 Storm sewers shall be designed with uniform grade and straight alignment between manholes, outlets, and drainage inlets.

2.6.2.12 Drainage inlets on roads shall be located at intervals not greater than one hundred fifty feet (150') at low points, at street intersections and at the base of Cul de Sac turnarounds.

2.6.2.13 Drainage inlet connections shall be twelve-inch (12") diameter pipe and should be connected to manholes.

2.6.2.14 Building drains shall be four-inch (4") diameter minimum at a minimum slope of two percent (2%) grade (1/4" per foot).

2.6.2.15 The minimum inside diameter of manholes shall be forty-eight inches (48") for twelve (12") through eighteen-inch (18") sewers, sixty inches (60") for twenty-one (21") through thirty-inch (30") sewers, and seventy-two inches (72") for thirty-three (33") through forty-two inch (42") sewers.

2.6.2.16 All three-way manholes shall be sixty inches (60") inside diameter or greater depending on size of storm sewers.

2.6.2.17 Swales and turf-lined channels shall be designed with slopes of not less than one percent (1%).

2.6.2.18 Inlets, catch basins, cleanouts and manholes shall not be located within the limits of driveway access to streets.

2.6.3 HYDROLOGIC DESIGN

Storm sewers and other drainage facilities for drainage areas up to one hundred (100) acres shall be based on a design flow with a minimum return interval of ten (10) years.

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

Drainage Area	Return Interval
100 acres - 4 sq. miles	25 years
4 sq. miles - 20 sq. miles	50 years
20 sq. miles and above	100 years

2.6.4 STORM SEWERS AND CHANNELS

Storm sewers and channels shall be designed to convey the anticipated runoff from within the development as well as all future development, as determined by the Developer's Engineer, from the upstream or upland watershed area.

For drainage areas of one hundred (100) acres or less, runoff within the development shall be computed by the Rational Method using a ten-year storm. Time of concentration to first inlet shall be taken as not more than fifteen (15) minutes, [and not less than five (5) minutes].

For drainage areas larger than one hundred (100) acres and for major channels or piping systems conveying stormwater through the development, the design shall be based on the Soil Conservation Service Method, Technical Release 55, using the appropriate storm return interval.

Rainfall intensity curves are located in the Appendix. A minimum coefficient of runoff of 0.2 shall be used for computations.

The Developer's Engineer shall submit the following information regarding the design of storm drainage facilities with the final map:

- A copy of an 800-scale topography map of the area with the outline of the development and the drainage basin, drainage path and time of concentration.

- A tabular form showing computed runoffs and design capacities of the drainage system.

- A copy of the final grading plan indicating the drainage areas that are being conveyed to the various storm structures.

The Chezy Manning's equation:

$Q = 1.486/n \times A\ R^{2/3} \times S_o^{\frac{1}{2}}$

shall be used in the sizing of the piping system, where:

Q = flow quantity, cubic feet per second
n = Manning's roughness coefficient
A = cross-sectional area of flow, square feet
R = hydraulic radius, feet
S_o = slope of conduit, feet of vertical drop per foot of horizontal distance.

The roughness coefficient, N = 0.013, shall be used for smooth pipe and N = 0.024 shall be used for corrugated steel or corrugated pipe, unless the corrugated steel pipe has an approved “smooth” lining; in that case, N = 0.013 can be used.

Only natural drainage channels may be continued as open channels. Street drainage systems shall be designed with storm sewers.

2.6.5 DETAILS OF HYDRAULIC STRUCTURES

Complete and sufficient details of hydraulic structures shall be submitted as part of the plans. This includes, but is not limited to, cross-sections of drainage channels, erosion control facilities, special manholes and all such other items as may be necessary to establish fully the methods and materials to be followed in construction.

2.6.6 SURCHARGING OF DRAINAGE FACILITIES

Storm drainage systems shall be designed so that surcharging will not cause backup or flooding of basements. The effects of a 25-year storm shall be studied by calculating the high water elevation and evaluating the operation of the storm drainage under such flows.

2.6.7 BUILDING AND LOT STORM DRAINAGE

2.6.7.1 Finished Grade Adjacent to Building

Finished grade adjacent to building walls shall be a minimum one-foot (1’) higher than the edge of pavement for standard subdivision development. In any case, provisions shall be made for positive drainage of each lot by designing a minimum grade of two percent (2%) away from the building to side-lot and back-lot swales, natural drainage channels or drains.

2.6.7.2 Roof and Basement Drainage

Provisions shall be made for disposing of roof and basement drainage. Basement floors shall be at an elevation higher than the street drainage system, if possible, to permit the street drainage system to be fully surcharged without causing backup or flooding of basements. In lieu of this, the Developer may provide that basements shall be drained with sump pumps and appropriate check valves.

2.6.7.3 Restrictions

Laundry, sanitary, or kitchen wastes shall not be discarded to storm drainage systems or swales. Drain connections from garages shall not be discharged to drainage swales.

2.6.8 STORMWATER GROUND RECHARGE

In areas where positive surface stormwater disposal is not feasible, the Town may allow stormwater ground recharge/infiltration.

The Developer shall retain a Geotechnical Engineer to provide a detailed report and plan documenting the ability of the aquifer to receive ground recharge. The report shall include soil permeability data at the elevation of reducing, geologic features, soil sampling and exploration data. Test pits/test borings shall be provided to define the limits of the area where recharge is proposed.

The ground recharge facility shall include an offline pre-treatment facility to provide for settling of sediment and for storage prior to recharge. Discharge to the recharge area shall use a trickle tube or other discharge control. Additional information including details of infiltration piping and other facilities, useful life of system, pollutant removal, and operation and maintenance responsibility shall be provided by the applicant.

2.6.9 STORMWATER MANANGEMENT FACILITIES

Stormwater management facilities, sedimentation basins and erosion control measures shall be provided where it is necessary, in the judgment of the Town Engineer, and in compliance with Town Law, to provide for adequate drainage and erosion control measures or where required by the New York State Department of Environmental Conservation.

The Town of Walworth reserves the rights to establish more restrictive parameters, for example, in the case that the existing stormwater practices are not sufficient to prevent downstream flooding.

A maintenance agreement must be provided in compliance with Town Law. All Stormwater Management facilities shall be designed according to the following guidelines:

- The New York State Stormwater Management Design Manual, New York State Department of Environmental Conservation.

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

- A twenty-five foot (25') access easement shall be provided around all portions of the pond, dedicated to the Town of Walworth.

The following represents the basic philosophy regarding the design of stormwater discharge:

- No developed area shall discharge an increased stormwater rate into adjacent culverts and channels that occurs under a natural undeveloped condition.

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

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

    b) 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.

- The fact that downstream facilities are inadequate prior to the development and, therefore, flood at certain times, does not imply that this flooding condition or any greater frequency flooding is desirable.

2.6.10 STORMWATER POLLUTION PREVENTION

The design of stormwater treatment facilities shall be in accordance with the requirements of the New York State Department of Environmental Conservation (NYSDEC).

A Storm Water Pollution Prevention Plan (SWPPP) must be completed under the following circumstances:

1) Any project the NYSDEC determines a need to provide water quality.

2) Development that increases parking space by 6,000 square feet.

3) Development that increases the amount of impervious surface on a property by 15,000 square feet.

4) Any non single-family residential project that disturbs one (1) or more acres or single-family residential projects that disturb five (5) or more acres.

5) Projects that disturb less than one (1) acre of land but are part of a larger common plan of development that ultimately disturbs one (1) or more acres.

The Owner must file a Notice of Intent (NOI) for construction activities if disturbances are one (1) acre or greater with the NYSDEC and the Town of Walworth.

Any construction project that disturbs more than five (5) acres at one time must apply for a waiver from the MS4. The following is required for all approved five (5) acre waivers:

- A qualified inspector must inspect the site two (2) times a week, with visits separated by two (2) full days.

- A phasing plan showing cuts and fills must be prepared.

- Soil stabilization must be completed within seven (7) days of the last disturbance.

The SWPPP report must define and meet all requirements of the New York State Department of Environmental Conservation Storm Water Regulations and sections of the Town Code addressing “Stormwater Management and Erosion and Sediment Control. The SWPPP shall include:

1) All items required by current NYSDEC permit.

2) Notice of Intent

3) Grading Plan

4) Erosion Control Plan

5) Drainage Report

If the SWPPP conforms to the DEC's technical standards, construction may begin five (5) business days after the DEC receives the NOI. Allow sixty (60) business days from the receipt of the NOI for review of the application by the DEC under the following conditions:

1) SWPPP does not conform to DEC's standards.

2) Surface water body to where site runoff discharges is classified as a 303(d) segment.

3) Project is located in a TMDL watershed.

A licensed professional or certified professional in Erosion and Sediment Control must complete a weekly inspection. Inspection will be done throughout the period of land disturbance until the re-vegetation of the disturbed area is 80% germinated. The Town Representative will monitor compliance with regulations and the Town will be reimbursed by the applicant for expenses incurred.

2.6.11 FLOOD HAZARD PREVENTION

Flood hazard prevention includes soil erosion on land, drainage channels, prevention of inundation and excessive ground water seepage. This requires an adequate grading plan and buildings and roads elevated above anticipated water levels.

Any grading within a floodplain or floodway shall be in conformance with requirements of the Federal Emergency Management Agency and the U.S. Army Corp. of Engineers.

2.6.12 SUMP PUMP AND FIELD INLET DISCHARGE

Discharge points from sumps shall not be located at gutters in streets.

2.6 EROSION AND SEDIMENT CONTROL

2.7.1 GENERAL

To control siltation and erosion resulting from land development, the applicant shall implement erosion and sediment control measures as required by the Town Code and by the NYSDEC as detailed in the "New York State Standard for Erosion and Sediment Control".

It is the applicant's responsibility to certify that the design and construction specifications for the erosion control measures are adequate and meet all requirements of the New York State DEC and the Town of Walworth Local Law addressing Erosion and Sediment Control.

2.7.2 EROSION CONTROL PLAN

The applicant shall submit an erosion control plan as part of the review process. The erosion control plan shall consist of maps and other information showing the existing features, the existing and proposed contours, and applicable erosion control methods including, but not limited to, the following:

2.7.1.1 Fitting the development plan to the topography and type of soils to minimize the erosion potential.

2.7.1.2 Exposing the smallest practical area of land at any one time during development following NYSDEC requirements.

2.7.1.3 Providing for temporary vegetation, mulching or other soil stabilization to protect critical areas during construction.

2.7.1.4 Returning and protecting natural vegetation wherever possible.

2.7.1.5 Installing permanent final vegetation and structures as soon as practicable.

2.7.1.6 Providing protective measures for slopes in excess of ten percent (10%) and minimizing such steep grading. Terracing of steep slopes should be considered to minimize erosion potential. Slopes greater than one (1) vertical to three (3) horizontal will require both temporary and permanent soil stabilization.

2.7.1.7 Providing rip-rip and stone fill with underlying geotextile fabric at points of discharge of storm sewers into open channels, ponds, and swales.

2.7.1.8 Completing phases of construction as quickly as possible and stabilizing disturbed areas.

2.7.1.9 Providing a landscaping plan and planting schedule. Ground cover shall be selected to minimize future maintenance and provide plant hardiness.

2.7.1.10 Installing siltation protection around catch basins, drainage inlets and field inlets as detailed in the NYSDEC Best Management Practices.

2.7.1.11 Installation of rock check dams, silt fence and siltation basins to intercept silt runoff as detailed in the NYSDEC Best Management Practices.

2.7.1.12 The applicant shall take all necessary measures to control dust resulting from his operation, to prevent spillage of excavation and to prevent spillage of excavated material on public roads. When directed by the Town Representative, the applicant shall apply calcium chloride and/or water where directed and in such quantities and at such frequency as may be required to prevent dust from becoming a nuisance to the surrounding area. The Developer will be responsible to insure that roads surrounding the development are kept clean of dirt and mud as a result of the construction.

The Town Engineer or the Town of Walworth Stormwater Management Official may implement a STOP WORK ORDER for failure to implement erosion control procedures as required by the Town Code, Local Law for Erosion and Sediment Control and by the Stormwater Pollution Prevention Plan, until the deficiency has been corrected.

2.8 ROADS AND STREETS

2.8.1 GENERAL

Roads and streets shall be provided for convenient traffic flow and circulation and for fire safety, emergency and maintenance access.

2.8.2 DESIGN STANDARDS

Design of roads, streets and drives shall conform to the following standards supplemented and superseded by additional requirements listed in these Town Standards.

2.8.2.1 *A Policy of Geometric Design of Highways and Streets*, American Association of State Highway and Transportation Officials (AASHTO).

2.8.2.2 *Geometric Design Guide for Local Roads and Streets*, American Association of State Highway Officials (AASHO).

2.8.2.3 Geometric design to meet New York State Fire Code for emergency access.

2.8.2.4 *Residential Streets, Objectives, Principles and Design Considerations*, published jointly by the Urban Land Institute, the American Society of Civil Engineers and the National Association of Home Builders.

2.8.2.5 Materials shall be in accordance with Section 3 – Construction Standards.

2.8.2.6 Minimum right-of-way widths, pavement widths, road sections and other details shall conform to Typical Right-of-Way Sections and Private Road Details in Section 4 – Standard Details.

2.8.3 HORIZONTAL DESIGN REQUIREMENTS

Roads and streets shall be designed to conform to the following horizontal alignment requirements:

2.8.3.1 Minimum radius along the centerline of horizontal curves shall be one hundred and fifty feet (150').

2.8.3.2 Minimum tangent along the centerline of road between horizontal curves shall not be less than one hundred feet (100').

2.8.3.3 Stopping sight distance for each type of road shall not be less than one hundred fifty feet (150').

2.8.3.4 Streets with no outlet shall not exceed one thousand feet (1000 feet) in length, shall contain no more than twenty five (25) residential lots and shall have adequate turnaround for fire and emergency vehicles. (See Town standard). Designs not meeting this criteria will be considered at the discretion of the Planning Board provided adequate measures are provided to mitigate safety concerns (such as a wider street.)

2.8.3.5 Layout of street systems in the development shall provide for access to future adjacent developments.

2.8.3.6 Temporary dead-end streets shall be provided with temporary turnarounds for fire and emergency vehicles with the same dimensions, base and asphalt material as specified for permanent turnarounds as well as a DOT approved guide rail at the end. (See Town standard).

2.8.4 VERTICAL DESIGN REQUIREMENTS

Roads and streets shall be designed to conform to the following vertical alignment requirements:

2.8.4.1 Minimum grade: 0.50%.

2.8.4.2 Maximum grade for:

Local Street – 8%
Private road, private drive, driveway – 10%

2.8.4.3 Vertical curves shall be provided for all changes in grade exceeding one percent (1%).

2.8.4.4 Minimum length of vertical curves shall be determined based on the sight distance required for each type of road. In no case shall it be less than one hundred feet (100’).

2.8.5 INTERSECTION DESIGN REQUIREMENTS

Intersections shall be designed to conform to the following requirements:

2.8.5.1 Within fifty feet (50') of intersections, streets shall be approximately at right angles and in no case shall the intersecting centerlines have an angle less than 75°.

2.8.5.2 Minimum pavement radius at intersections shall not be less than thirty feet (30').

2.8.5.3 Minimum distance between centerlines of offset streets shall not be less than two hundred feet (200').

2.8.5.4 Leveling areas shall be provided on all sides of intersections for a minimum distance of one hundred feet (100') where grade shall not exceed four percent (4%).

2.8.5.5 Maximum pavement grade within intersections shall not exceed one percent (1%) in any direction.

2.8.5.6 Visibility for traffic safety shall be provided within triangular areas formed by the intersecting right-of-way lines and a sight line between points one hundred feet (100') from their intersection. There shall be no plantings or structures in these triangular areas. Triangular areas should be visibly shown on the site plan.

2.8.6 GRADING

Areas within street rights-of-way shall be graded to eliminate slopes steeper than one (1) vertical to three (3) horizontal.

2.8.7 SIDEWALKS

Sidewalks shall be provided where required or requested by the Town for safety or convenience. Generally, sidewalks will be required along local Primary or Major Thoroughfares and along other streets near schools or where pedestrian traffic is anticipated. The minimum width of sidewalks shall be 4 feet (4’). Development in commercial areas may require wider sidewalks.

2.8.8 MONUMENTS

Permanent monuments shall be provided for major subdivisions at the following locations and shall be shown on the final subdivision plat:

- All boundary corners and angle points along street rights-of-way of the parcel being subdivided.
- In street right-of-way boundaries at all street intersections.
- In street right-of-way boundaries at PC and PT of horizontal curves.
- In centers of cul-de-sacs.

Monuments are required on only one side of the street and at only one corner of intersecting streets. Adjacent monuments shall be inter-visible.

Maximum spacing of monuments shall be eight hundred feet (800').

Monuments shall be tied into the New York State Coordinate System, where practical, in the opinion of the Town/Town Engineer.

2.8.9 ROAD DEDICATION REQUIREMENTS

2.8.9.1 Policy

All primary roads and collector roads serving a development shall be built to the appropriate Town *Design Standards* and dedicated to the Town.

2.8.9.2 Dedication Requirements

Prior to any road being accepted for dedication, it must be completed in accordance with the approved plans to the satisfaction of the Town Engineer and Highway Superintendent.

2.8.9.3 Privately Owned Accessways

This section pertains to any commonly owned means of access to property. All proposals for commonly owned private accessways must be approved by the Highway Superintendent and the Planning Board and be made part of the subdivision review record. Private ownership must be clearly identified on the final subdivision map. Prior to final approval of subdivision plans, an application for a homeowners' association and a draft offering plan for the New York State Attorney General's Office must be filed with the Planning Board. An "exempt status" letter from the New York State Attorney General's office may be filed in lieu of the application and offering plan. Should the commonly owned access not require a homeowners' association, then reciprocal easement and a maintenance agreement must be recorded and placed in the deeds of the affected lots. A copy of the deed filing must be presented to the Building Department prior to a building permit being issued for an affected lot.

2.8.9.4 Surety

Appropriate surety shall be required for all dedicated roads and commonly owned private accessways.

2.8.10 DEDICATION OF EXISTING PRIVATE ROADS

2.8.10.1 Matter is considered a resubdivision and must undergo Town Planning Board review.

2.8.10.2 All responsible officials will review the proposal and their respective approvals are required before the Planning Board will consider the final plat.

2.8.10.3 As with all other Planning Board matters, project sponsors will pay all costs (legal and engineering) associated with review of the project before dedication is accepted. If the effort is unsuccessful, then the sponsors will still be responsible for municipal review costs.

2.8.10.4 After appropriate approvals are granted, a letter of approval and any and all conditions will be forwarded to the Town Board for action. A resolution accepting dedication must be approved by the Town.

2.8.11 DRIVEWAY DESIGN REQUIREMENTS

Design and location of driveways shall be in accordance with applicable requirements of *New York State Department of Transportation (NYSDOT) Policy, Standards for Entrance to State Highways* and *New York State Fire Code*. These standards shall also apply to driveways entering onto County and Town roads.

2.8.11.1 Vertical Alignment

Driveways shall slope away from the edge of road pavement, except in the case of gutters, at the same slope as the road shoulder. The slope shall extend at least the full width of the shoulder so as not to create a bump or depression in the shoulder area.

2.8.11.2 Horizontal Alignment

Driveways shall conform to the horizontal alignment requirements of Driveway Details in Section 4 – Standard Details.

2.8.11.3 Application Requirements

Written application including a plan and a profile of the driveway may be required by the Highway Superintendent for approval.

2.8.11.4 Storage Capacity

A minimum storage capacity of at least three (3) vehicles without infringing upon sidewalks.

2.9 EXTERIOR SITE LIGHTING

2.9.1 GENERAL

Exterior site lighting shall be designed to control spillover of light and glare from parking lots and other site lighting including residential security lighting on operations of motor vehicles, pedestrians and land uses in the proximity of the light source.

2.9.2 DESIGN STANDARDS

Intersection light specifications will be required where all new or existing streets intersect with new or existing streets.

Design of lighting for parking lots and other site lighting shall conform to the following standards supplemented and superseded by additional requirements as follows:

2.9.2.1 IES Lighting Handbook by Illuminating Engineering Society of North America.

2.9.2.2 National Electrical Code, ANSI/NFPA No. 70.

2.9.2.3 Catalog information on luminaries and isofoot-candle curves for horizontal foot-candles at grade shall be submitted for review.

2.9.3 RESIDENTIAL ZONES

In residential areas, maximum illumination shall not exceed 0.0-foot-candles at grade at the property line and maximum height of luminaries shall not exceed ten feet (10'), without approval of the Planning Board.

2.9.4 COMMERCIAL AND INDUSTRIAL ZONES

Maximum illumination at grade at the property line and maximum height of the luminaire shall not exceed the following:

1) Luminaire without cutoff:

   Illumination: 0.2 foot-candles
   Luminaire mounting height not more than ten feet (10')

2) Luminaire with 90 degrees or greater total cutoff:

   Illumination: 0.75 foot-candles
   Luminaire mounting height not more than twenty-five feet (25')

3) Luminaire with 90 degrees or less total cutoff and with light source completely shielded from view five feet (5') above grade at a point at which the cutoff angle intersects the grade:

   Illumination: 2.0 foot-candles
   Luminaire mounting height not more than twenty-five feet (25').

2.10 DUMPSTER ENCLOSURES

Commercial or Residential areas that utilize a dumpster shall provide an enclosure in which to house the dumpster, shielding it from view of the surrounding properties. The enclosure shall be constructed of a material that completely screens the dumpster from view and shall be a minimum of five feet (5') in height or higher, if required, to conceal the dumpster within. It shall also provide a minimum of three feet (3') of clearance on all sides of the dumpster.

The pad within the enclosure shall be 3,000-psi concrete, minimum four inches (4") thick, level across and sloped ½ of 1% towards the enclosure opening. Gates shall be placed to provide a minimum of three feet (3') of clearance on each side of the dumpster when they are fully opened. Deviations from this criterion are at the discretion of the Code Enforcement Officer.

Section 3
Construction Procedures and Material Specifications

3.1 GENERAL

3.1.1 ADOPTION AND PURPOSE

These Specifications were adopted by the Town Board of the Town of Walworth. The purpose is to establish minimum standards for design and construction of residential, commercial and industrial improvements and developments within the Town of Walworth. These Specifications are to be used in conjunction with the Code of the Town of Walworth.

All improvements and/or developments within the Town of Walworth that require subdivision or site plan approval shall be approved, designed and constructed as required by the Code of the Town of Walworth and these Specifications. Plans and/or Plats required for subdivision or site plan approval will not be considered complete until design, location layout, construction details and other aspects of the proposed facilities conform to the requirements of the Code of the Town of Walworth and these Specifications. Developer and his Contractor are responsible to assure the Town that facilities proposed for dedication to the Town conform to these Construction Specifications.

3.1.2 DEFINITIONS

Except where otherwise defined within the Code of the Town of Walworth, Subdivision of Land, Site Plan Review; all words shall have their customary and ordinary meaning.

The terms "approved drawings" or "approved plan" as used herein shall mean the final plat or site plan and accompanying plans, profiles, sections and details as approved by the Planning Board of the Town of Walworth.

3.1.3 RESPONSIBILITY

The Developer's designer is solely responsible for proper preparation of plans, coordination and construction of the improvements and operation of all facilities in strict accordance with the requirements of the Town of Walworth, these Construction Specifications and other State or Federal applicable laws, rules, regulations and codes.

The Developer's Engineer shall certify to the Town Engineer that plans and designs have been prepared in accordance with aforementioned codes and specifications. Upon completion of construction work, record drawings shall be prepared for submission to the Town. Certification of "as-built" information by the Developer's Engineer shall be obtained before final certificate of approval is issued by the Town Engineer.

Designated representatives of the Town of Walworth shall have the authority to enforce these specifications. As determined at the pre-construction meeting, the project’s on-going communications concerning the work shall be made through the Building Inspector or Town Engineer to Developer or the Developer's Engineer whenever possible.

3.1.4 TOWN INSPECTION

Periodic inspections may be performed by the Highway Superintendent, Sewer Superintendent, Building Inspector, Field Inspector and Town Engineer or duly authorized representative to serve as a check that construction is being performed in accordance with these specifications and the approved plan. The final results of the development remain the responsibility of the Developer, regardless of such inspections.

3.1.5 PERMITS

The Developer is responsible for making application for, obtaining and abiding by the requirements of all State, County and Town Highway Permits; New York State Department of Environmental Conservation Stream Crossing Permits; Wetlands Permits; and State Pollutant Discharge Elimination System Permits; Building Permits; Blasting Permits; and any other permits required for the work.

3.1.6 WATER FOR CONSTRUCTION AND TESTING

Whenever public water exists in an approved Town District, it will be made available to the Developer or his Contractor for construction and testing purposes after arrangements have been made with the Wayne County Water and Sewer Authority for proper metering and/or estimation of water use, proper connection to the system, payment for water use and payment for construction fee. Charges will be based on the current retail water use schedule.

3.1.7 EXISTING FACILITIES

Any connection to an existing roadway, gutter, water main, storm drain, sanitary sewer or other existing utility shall not be made without notification and permission of the duly authorized representative of the facility concerned. Valves and appurtenances shall not be operated by anyone other than the duly authorized representative of the utility. Connection to any existing utility shall be performed in the presence of the utility's authorized representative.

Notify all utilities and the Underground Facilities Protective Organization, Inc. [(800) 962-7962] forty-eight (48) hours prior to any excavation and obtain stakeout of existing utilities.

3.1.8 TRAFFIC CONTROL

Developer shall provide all facilities necessary to assure that traffic on existing streets and highways shall be maintained and controlled in accordance with the highway permit requirements and the current NYSDOT "Manual of Uniform Traffic Control Devices".

Developer shall provide flagmen and adequately lighted signs and barricades for directing traffic. Particular attention shall be given to maintenance of lights and flashing signals during the night.

3.1.9 STAKEOUT AND RECORD INFORMATION

All work shall be constructed in accordance with the lines, grades and elevations on the approved drawings. The Developer's Engineer shall provide alignment and grade stakes at each fifty foot (50') interval and at all changes of direction for sanitary and stormwater pipelines and roads, gutter, curbs and sidewalks. The Developer's Engineer shall furnish the Town Engineer with a copy of the "cut sheets". Stakes shall be set prior to commencing construction, on a suitable offset line, parallel with the work. Grade boards and survey levels shall be used to transfer the grade from the stakeout to the facility being constructed. Laser instruments installed and operated in accordance with manufacturer's instructions are acceptable. The use of double string lines will not be permitted. The method of stakeout must be to the satisfaction of the Town Engineer.

Upon completion of Construction and prior to acceptance, "as-built" or record drawings shall be prepared for submission to the Town. The Developer's Engineer is responsible for obtaining "as-built" or "record information" to be used in completion and certification of the required record drawings. "As-built" information and drawings shall include, but not be limited to, location of sewer and storm drain manholes; inlets; catch basins and laterals; location of watermain valves; hydrants; bends and tees; invert and top of grate elevations for all sanitary and storm sewer piping and structures; ties to permanent above ground landmarks; small service connections; curb stops; bends; cleanouts; tees; valves; installed length and slope of sanitary and storm sewer piping; and all other pertinent information as required by the Town Engineer. Five (5) paper copies and one (1) electronic copy are required.

3.1.10 PROTECTION OF MATERIALS AND WORK

The Developer's Contractor shall provide suitable means of protection for materials and completed work to the satisfaction of the Town Engineer.

Under no circumstances shall materials be dropped or mishandled in any manner. Materials shall be suitably stored on dry ground and/or pallets away from mud and water.

Pipelines shall not be used as a method of dewatering trenches during construction.

Mud shall not be tracked onto completed road base, pavement, gutters or sidewalks by trucks and machinery. It shall be the Developer's responsibility to ensure that cleanup is performed by any responsible Contractor, Subcontractor or Utility Company Contractor at the end of each workday (or immediately if deemed necessary by Highway Superintendent or Town Inspector).

Tracked vehicles shall not be permitted to cross completed road surfaces, gutters, curbs or sidewalks without the use of planking, mats or other protective devices.

Completed gutters, curbs and/or sidewalks shall not be subjected to loading from heavy trucks or construction equipment that will chip, crack, settle or displace the work in any manner. Particular care shall be exercised in rolling pavement surfaces to prevent chipping of gutters and curbs. All damaged portions shall be removed and replaced in complete sections.

3.1.11 ADVERSE WEATHER AND/OR SITE CONDITIONS

Under certain adverse weather condition such as high ground water, frozen conditions or when site or trenches are muddy, wet or frozen, work shall not be performed unless directed by the Town Engineer.

Surface water shall be diverted around trenches and subgrades so that soil will not become saturated or frozen during construction. Soft spots, which would deleteriously affect work finished, shall be removed and refilled with crusher-run stone or approved material.

Any work installed under adverse weather conditions and/or site conditions, which in the opinion of the Town Engineer will be deleteriously affected and may not be deemed acceptable, shall be removed and reinstalled prior to final acceptance, approval or issuance of Certificate of Occupancy. Stop Work Orders may be imposed by the Building Inspector under adverse conditions.

3.1.12 CLEAN-UP AND SITE SANITATION

During period of construction of site improvements and residences, Developer must install and maintain portable toilet for use of construction workers and visitors. The Developer must also maintain the unit to prevent overflow and odors.

Materials and equipment to be incorporated into the project may be stored temporarily on site. These items must be stored neatly and protected from weather and vandalism.

As the work progresses and after the work has been completed, the Developer or his Contractor shall remove all unused materials, rock, boulders, rubbish, refuse, waster materials and other debris from the project site and shall maintain the project site in a neat and orderly condition. The Contractor shall provide trash containers, dumpsters and waste receptacles at convenient areas for use by workers. Under no circumstances shall these waste materials be buried in pipeline trenches or structure excavations. The Developer or his Contractor, in accordance with all State and local laws, rules and regulations, shall arrange for the removal of waste material for disposal.

3.1.13 EQUIVALENTS

Whenever in these specifications one or more products are specified, the words "similar and equivalent to" shall be deemed inserted.

When such product, article, material or item is specified by a reference to the name, trade name, make, catalog number, manufacturer or supplier, the intent is not to limit competition, but rather to establish a standard of quality and excellence which the Town Engineer has determined is necessary for the project. A Developer may submit information on any substitute product that, in the opinion of the Town Engineer, is similar and equal to the specified item. In some instances, standardization of certain items will be required when in the opinion of the Town Engineer; a substitute product would require additional repair parts or equipment to be stocked by the Town for future maintenance purposes.

All products, materials or items shall be new and unused unless approved for use by the Town Engineer.

3.1.14 REFERENCES TO OTHER SPECIFICATIONS

Throughout these Construction Specifications, references are made to other standard specifications. References to other specifications shall mean that the applicable portions thereof shall be followed as if the specifications were actually incorporated in these Construction Specifications. It shall be understood that such references shall be to the latest edition or revision thereof including all addenda.

3.1.15 INSURANCE REQUIREMENTS

The Developer's Contractor shall procure and maintain, until final acceptance by the Town, insurance of all types that are specified herein. Insurance coverage shall be provided by a company licensed to do business in New York State. Copies of Insurance certificates in effect shall be provided to the Town Engineer prior to starting work. Insurance shall name Town, Superintendent’s, Engineer’s and all agents as co-insured. Insurance shall be of each type and in the amounts hereinafter provided unless designated otherwise by the Town:

1) Workmen's Compensation Insurance

   In accordance with the provisions of the Workmen's Compensation Law of the State of New York.

2) Liability and Property Damage Insurance

For all damages arising from the work in the types as follows:

a) Contractor's Liability Insurance for the Contractor

b) Contractor's Liability Insurance for all Subcontractors

c) Contractor's Protective Liability Insurance

d) Protective Liability Insurance issued to and covering the Town of Walworth, its people, and employees whenever the Contractor is employed directly by the Town of Walworth

Bodily Injury Liability

Each Person: $1,000,000
Each Accident: $2,000,000

Property Damage Liability

Each Accident: $1,000,000

3) Vehicle Insurance

Bodily Injury Liability

Each Person: $1,000,000
Each Accident: $2,000,000

Property Damage Liability

Each Accident: $1,000,000

4) Liability Insurance

Provide basic Liability Insurance with umbrella coverage to provide a single occurrence liability limit for personal injury and property damage of $2,000,000.

3.1.16 WORK PERIODS

Representatives of the Town will be available for inspection during a standard workday between the hours of 8:00 AM to 4:30 PM Monday through Friday (except for Holidays). Construction work, which in the opinion of the Town Engineer requires inspection, will not be allowed to occur at times other than during the standard workday (unless required during emergencies or arranged for with the Town). Inspection costs incurred by the Town beyond the standard workday will be charged to the Developer in addition to the basic inspection fee. Work completed after normal working hours will be considered overtime and will be billed to the Developer at the Town standard billing rate. Saturday working hours requires notice by Thursday afternoon.

3.2 SITEWORK

3.2.1 CLEARING AND GRUBBING

Wherever possible, all natural features such as large trees and watercourses, shall be preserved and protected from damage during construction unless specifically indicated for removal or alteration on the approved drawings. When it is necessary to remove branches or roots of trees that are to be saved because of interference with proposed facilities, they shall be carefully pruned. Limbs shall be clean cut perpendicular with the ground.

Clearly designate all trees to be removed and provide protection around trees to remain. Any trees damaged during clearing operations shall be evaluated by a qualified arborist or nurseryman to determine their future. Resolution of this matter shall be between the Owner of the property and the Contractor having caused said damage. In the event of damage to plants designated to remain, a qualified arborist or nurseryman shall evaluate proper thinning, crown reduction and fertilization.

Hedgerows, bushes and trees indicated for removal shall be removed in their entirety, including stumps and large roots. Removed trees, brush, stumps and large roots shall be hauled away with other debris to a site arranged for by the Developer's Contractor and approved by any agencies having jurisdiction.

Under no circumstances shall these materials be burned or buried on the site without proper approval and/or permit from the Town. Burning and/or burial shall be done only at approved locations and in conformity with requirements of agencies having jurisdiction. Disposal of surplus materials on any designated wetlands, erodible slope or flood plain shall be strictly forbidden.

3.2.2 SILTATION AND EROSION CONTROL

The Developer is responsible for installing and maintaining erosion and siltation control during the entire period of construction and until substantial ground cover is established. All siltation and erosion control measures shall be planned and designed in accordance with standards established by the "New York Guidelines for Urban Erosion and Sediment Control", these Specifications, and NYSDEC recommendations presented in "Reducing the Impacts of Stormwater Runoff from New Development". Siltation barriers of straw bales and filter fabric shall be installed and maintained at all completed stormwater inlets and areas where erosion or siltation endangers natural watercourses, storm facilities or off-site property.

Once the Town determines that substantial ground cover is established and temporary measures are no longer necessary, the Developer shall remove all temporary structures. Fine grade and seed all areas disturbed by removal of temporary measures.

Where indicated on the approved drawings, construct temporary siltation basins to prevent silt and debris from washing into downstream channels or storm drains. Dikes, embankments and swales shall be constructed of compacted earth, seeded with perennial ryegrass within five (5) days of completion or if left dormant for thirty (30) days, seeded and maintained until completion of the project.

All temporary siltation and erosion control measures must be installed and maintained for the duration of the project. All temporary facilities must be removed no later than ninety (90) days after development reaches ninety percent (90%) occupancy.

From time to time during the progress of the work and after all work has been completed, remove and dispose of debris and silt that collects in silt basins and at siltation barriers.

The temporary siltation controls shall remain until after completion of all work on the project at which time they shall be removed, filled and regraded. Reseed all disturbed areas with perennial ryegrass if in an open area or with lawn grass mixture if located in a lawn area.

Topsoil and seed the entire site within two weeks of completing site grading, weather and site conditions permitting. Reseed areas disturbed as soon as possible after grading is completed. The Town will not accept dedication of any facilities until permanent vegetation is established within the right-of-way and within all drainage easements.

3.2.3 STRIPPING AND STORAGE OF TOPSOIL

Stripping and storage of topsoil shall be in conformance with Town Code Section 180–38. Topsoil shall be removed from all fill areas, building areas and from such other areas as required to provide a sufficient quantity of suitable material to complete topsoil spreading and seeding operations over the finished site. Do not remove topsoil beneath the spread of branches of trees to be saved. Do not bury topsoil under any portion of the project site.

No topsoil is to be removed from site without Town Board approval. Topsoil shall be stockpiled on the site in such a manner that will not obstruct site drainage or siltation control. Construction drawings shall show areas where topsoil is to be stockpiled for each project phase.

All on-site topsoil is to be used for fine grading and seeding operations and shall be loam that is free from subsoil, stumps, brush, roots, debris and stones or clay lumps larger than two inches (2”) in greatest dimension. Four inches (4”) of topsoil is to be placed on house pads.

Topsoil screening operations shall not be performed on site without prior approval from the Town. Under no circumstances shall topsoil be removed and hauled away from the project site without Town Board approval.

3.2.4 EARTHWORK FOR ROUGH GRADING

Rough grade the site to the contours shown on the approved drawings; making allowance for roads, parking areas, walks, gutters and topsoil. The rough grade surface shall be free from ruts, pockets or mounds.

Fill areas beneath proposed roads, parking areas, walks and gutters shall be placed in six-inch (6”) lifts and thoroughly compacted to at least ninety-five percent (95%) of the maximum dry weight density of the fill material to limits of base material. Use an approved sheeps foot or vibrator type roller for compaction, as required, for soil conditions and add water if necessary to obtain maximum compaction. Fills need to be tested by Nuclear Method or approved equal.

Earthwork for road construction requiring compacting shall not be performed from November 1 to April 1, except as otherwise permitted by the Town Engineer.

Rough site grade shall be established prior to installation of drainage, water system and sanitary sewer system improvements. Temporary ditches may be required to eliminate road base pockets until permanent drainage facilities and pavements are completed.

If it is necessary to cross an existing highway with earth moving equipment; provide flagmen, signal lights and warning lights to safely maintain the flow of traffic in conformance to the current NYSDOT "Manual of Traffic Control Devices." Tracked equipment will not be permitted to cross existing pavements except as specified under Sub-section 1.10.

Disposal of excess earth will require a site to be arranged for by the Developer's Contractor and approved by the Town Engineer.

3.2.5 ROADS AND PARKING AREAS

General

Where Developer must cut existing roads and/or streets to install any utility, he must backfill depth trench with K-crete installed in full conformance with supplier's recommendations, maximum slump three inches (3"). Cover road cut with steel plate to protect for twenty-four (24) hours before paving. A permit will be required. Open road cut for utility installation will require a security deposit, to be determined by the Highway Superintendent, and held for a period of one year from completion.

The Developer's Contractor shall not proceed to construct any road base course or pavement until all underground utilities within the street have been installed, tested and approved. To prevent soft spots, utility trenches crossing paved areas shall be backfilled with crusher run in six-inch (6") lifts and compacted with a vibrating plate or vibratory roller. No cuts shall be allowed in previously installed road base or pavement.

Private roads, where approved by Planning Board, must conform in every respect to those standards for public roads. Gutters are required for private roads.

Subgrade

The subgrade shall be fine graded and thoroughly and continuously compacted. Fill areas shall be constructed of suitable material (inorganic soil, blasted or broken rock) placed in layers of a maximum six-inch (6") compacted thickness. Cohesionless soils (sands, gravels and broken rock) may be compacted with a ten-ton (minimum) vibratory single or double drum roller or other approved method. Cohesive soils (silts, clays and sands which contain silts or clays) shall be compacted with a sheepsfoot roller with sufficient number of passes until the device substantially "walks out" of the compacted layout. Underdrain weep trench subgrades shall be prepared at this time.

The Town Engineer or his representative shall be present when the subgrade is prepared and rolled. Filled areas should be tested by nuclear testing.

Final subgrade shall be completely "proof rolled" with a loaded truck providing a per wheel loading of 5,500 pounds (minimum total truck weight of 55,000 lbs). Soft spots shall be removed and replaced with base course material as directed by the Town authorized representative providing inspection.

Filter Fabric

Geotechnical Fabric

Separation fabric between prepared roadway subgrades and road base material shall be woven polypropylene fabric meeting the minimum standards in the Table below.

Filter fabric installed around weep trenches shall be non-woven polypropylene fabric meeting the minimum standards in the Table below.

Siltation fence for temporary erosion control shall be woven polypropylene fabric meeting the minimum standards in the Table below.

Property	Separation Fabric	Drainage Filter	Temporary Erosion Control
Mass per unit ASTM D5261	6.0 oz./yd²	5.0 oz./ yd²	2 oz./yd
Grab Tensile ASTM D4632	300 lb. (MD) 300 lb. (CD)	100 lb. (MD) 130 lb. (CD)	120 lb. (MD) 100 lb. (CD)
Grab Elongation ASTM D4632	15%	50%	10%
Puncture ASTM D4833	120 lb.	70 lb.	60 lb.
Apparent Opening ASTM D4751	U.S. Sieve 40 .42 mm	U.S. Sieve 70 .21 mm	U.S. Sieve 40 .42 mm
Permeability ASTM D4491	.001 cm/sec	.22 cm/sec	.005 cm/sec
Flow Rate ASTM D4491	2 gal/min/sq.ft.	120 gal/min/sq.ft.	20 gal/min/sq.ft.

Underdrains

Perforated underdrain piping shall be four-inch (4") corrugated polyethylene pipe conforming to ASTM F405 and AASHTO M252 installed in a weep-trench consisting of NYSDOT Item 703-0201, No. 1 and 2 crushed stone material.

Underdrain piping and weep-trench shall be installed below all gutters as indicated on approved drawings. Underdrain piping shall be connected to the upgrade side of each stormwater inlet structure.

Underdrain piping shall extend the full length of gutters unless subsoil testing by the Developer indicates an average permeability of soil greater than 7×10^{-4} (0.0007) cm/sec., pending the approval of the Town Engineer. Testing shall be performed in the presence of a Town Representative at 300-foot intervals and at the depth of three feet (3') from finished grade. Upon approval, underdrain piping shall then extend a minimum of ten feet (10'), 4" perforated PVC or CMP upgrade of each stormwater inlet structure.

Base Course

Base course material shall consist of two courses; one compacted, eight inch (8") (minimum) course of Type 2 crusher-run stone (NYSDOT Item 304.03) and one compacted four inch course of Type 1 crusher run from a NYSDOT approved source. Materials shall be clean, free from dirt, shale or other soft, poor durability particles and well graded for optimum compaction as follows:

Sieve Size	Percent Passing by Weight
2"	100
¼ "	25 to 60
No. 40	5 to 40
No. 200	0 to 10

The base course shall be at least twelve inches (12") compacted thickness and shall be placed and compacted in not greater than six inch (6") compacted thickness courses using a ten-ton (minimum), vibratory, single or double drum roller or other approved method. The base course shall extend at least twelve inches (12") beyond the edge of the pavement and gutter. The finished surface shall be smooth and free from ruts, pockets, mounds or contamination.

Asphalt Pavement

Two course, plant mix, hot asphalt concrete pavement shall conform with applicable portions of NYSDOT Standard Specifications for Plant Mix Pavements - General, Sections 401-2 Materials, 401-3 Construction Requirements and the following weather and seasonal limitations:

- Bituminous plant mix shall not be placed on any wet surface or when the surface temperature is less than specified in the Table below, Temperature and Seasonal Requirements, or when weather conditions otherwise prevent the proper handling or finishing of the bituminous mixtures as determined by the Town. The pavement surface course shall be paved within the seasonal limitations indicated in the following Table.

- The surface temperatures in the Table below shall apply for both pavement surface and shoulder surface courses. Paving shall be discontinued as soon as the temperature falls below the requirements.

- Bituminous pavement for temporary detours, which are not and will not become part of the permanent pavement, will not be subject to the above requirements in regard to temperature and seasonal limitations, but must be placed as approved by the Town.

- Bituminous paving mixtures for curbs, driveways, sidewalks, gutters and other incidental construction shall be placed on surfaces having a temperature of 45°F or greater unless otherwise authorized by the Town. Placing of these items is not subject to seasonal limitations.

TABLE 401-2
TEMPERATURE AND SEASONAL REQUIREMENTS

Nominal Compacted Lift Thickness	**Surface Temperature Minimum (Note 1)**	**Seasonal Limits**
1"or less	50°F	Note 2
Greater than 1" Less than 3"	45°F	Note 2
3" or greater	40°	None

Notes:

1) All temperatures shall be measured on the surface where the paving is to be placed. The controlling temperature shall be the average of three temperature readings taken at locations 25± feet apart in accordance with the Department's written instructions.

2) Top course shall be placed only during the period of May 1st up to and including the third Saturday of October in all counties.

   Schedule the paving operations such that all paving necessary to provide safe and adequate maintenance and protection of traffic or for protection of previously laid courses is completed within the weather and seasonal limitations. Such scheduling shall include expediting construction operations to permit paving before the seasonal limitations or by limiting the length of work to that which can be completed before the seasonal shutdown.

   Any pavement damage which occurs as a result of the Contractor either not protecting previously laid courses or constructing any pavement course outside the specified weather and seasonal requirements, whether or not a waiver was granted, shall be repaired by the Contractor at no expense to the State. All repairs shall be performed to the satisfaction of the Engineer and Town Highway Superintendent.

3) Bituminous Mixing Plant. The type of plant used for the manufacture of bituminous mixtures may be a batch plant, a continuous mix plant or a drum mix plant. All plants shall conform to the requirements under A. In addition, batch type mix plants shall conform to the requirements under B; continuous type mix plants shall conform to the requirements under C; and drum mix type plants shall conform to the requirements under D.

a) Requirements for All Plants

- Acceptance and Uniformity

  Each bituminous mixing plant shall be approved by the Director, Materials Bureau. The Regional Director may discontinue, at any time, the use of any previously approved equipment if any nonconformance of specifications results during the progress of work. When the Regional Director discontinues the use of the plant, production will not be acceptable for Department work until corrective measures, satisfactory to the Regional Director, are carried out. The mixing plant shall be designed, operated and coordinated as to provide, as nearly as possible, continuous plant production. The mixture produced shall be uniform and in sufficient quantity for the bituminous construction specified. The Regional Director may require the locking or sealing of any automated proportioning equipment that may be manually manipulated.

- Failure of Automated Proportioning and Recording Equipment

  If at any time the automatic proportioning of recording devices become inoperative, the plant may, with the approval of the Regional Director or his representative, be allowed to proportion and mix bituminous mixtures for a period not exceeding forty-eight (48) hours from the time of the breakdown. Written permission of the Regional Director will be required for periods of operation longer than forty-eight (48) hours.

- Plant Scales and Meters

  All plant scales, vehicle scales and meters shall be tested at the Contractor's expense by a competent technician as follows:

  1) Annually, prior to use for Department work.

  2) At intervals of not more than sixty (60) calendar days for plant batching scales and not more than one hundred twenty (120) calendar days for vehicle scales and meters.

  3) Whenever the plant changes location.

  4) At any time directed by the Regional Director or his representative.

- All base course material, which is, in the opinion of a Town Representative, contaminated before paving will be removed, replaced and compacted.

- Binder course shall be three inches (3”) compacted thickness of NYSDOT Item 403.13 Asphalt Concrete, Type 3. Compaction shall be with a ten-ton (minimum) tandem vibratory roller or other approved method. As soon as possible after spreading, rolling shall be started at the outside edge and proceed towards the center, half-lapping on each pass. Any displacement of material shall be corrected at once by hand raking additional fresh mixture as required. The drive wheel of the roller shall be nearest the paving machine. Rolling shall continue until all ruts, ridge and roller marks are eliminated.

- The binder course shall be broomed clean, water flushing as necessary, to the satisfaction of the Town Highway Superintendent.

- The top course shall not be installed until fifty percent (50%) of the development receives Certificate of Occupancy or, if earlier, as approved by the Highway Superintendent and Town Engineer. Developer/Contractor must clean all cracks and seams of extraneous material and then seal with hot asphalt all cracks and seams every year before July until topcoat has been installed and accepted.

- Top course shall be one inch (1”) compacted thickness of NYSDOT Item 403.16 Asphalt Concrete Type 6 over a tack coat installed to conform with NYSDOT Section 407. Tack coat shall not be applied within six inches (6") of gutters or curbs. The Contractor shall ensure that tack coat will not be tracked upon or otherwise come into contact with concrete surfaces. Tack coat shall not have overnight exposure. Finished surface tolerances shall conform in all respects to NYSDOT Sub-section 401 - 3.14 with 1/4-inch maximum surface variation. No asphalt topping may be installed after October 20th and/or before April 1st each year.

Street Signage

The Town of Walworth Highway Department will install all street signs including street name signs, traffic control signs, etc. Developer is responsible to reimburse the Town for the signage for each section of each development before the first Certificate of Occupancy for the first residence can be issued by the Town Code Enforcement Officer. Dedication cannot occur until street signs have been completed.

Utilities

Where the Developer plans to install cable television and underground electric service lines, he shall assure that those utilities are installed in full conformance with these Specifications and all Town rules, regulations, and Law.

Developer shall install at least one three-inch (3") PVC conduit for all utility crossings of the streets and at least every one hundred feet (100') of street length.

Utility Contractor and Developer are responsible to restore all disturbed facilities and grades to a condition at least as good as it existed prior to commencing his construction activities. Contractor must broom the street surface daily to remove mud and debris from street and gutters resulting from his activities.

3.2.6 SIDEWALKS

Base Course

Just prior to placing the base course, the sub-grade shall be final graded and thoroughly compacted with vibratory compactor or vibrating type roller.

Base course material shall be Type 2 crusher run as specified under Roads and Parking Areas.

The base course shall be at least four inches (4") compacted thickness and shall be compacted using a vibratory compactor or vibrating type roller. The base course shall extend at least six inches (6") beyond the edge of the walk. The finished surface shall be a smooth broomed finish, free from ruts, pockets or mounds.

Portland Cement Concrete.

Ready mixed, reinforced concrete shall conform with applicable portions of NYSDOT Standard Specifications for Portland Cement Concrete - General, Sections 501-2 Materials, 501-3 Construction Requirements, 502-3.01 Weather Limitations and the following:

Walks shall be four inches (4") minimum thickness (six inches (6") minimum thickness at corners, drive and road crossings) and shall have cross slope 1/4 inch/foot.

Materials and composition shall conform with NYSDOT Table 501-3 Class "A" general purpose structure concrete, as follows:

Cement	606 lb./cy
Sand % Total Aggregate (Solid Volume)	36.2
Water/Cement (Weight)	.46
Air (Content)	6%
Slump (in.)	2 ½ to 3 ½
Course Aggregate Gradation	CA2
Compressive Strength	3500 psi

Forms shall be straight and rigid two-inch nominal thickness wood or prefabricated steel accurately set to alignment and grade shown on the approved drawings. Wire fabric for reinforcement (use at drive and road crossings only), conforming with ASTM A 185, shall be 6 x 6 - 10/10 mesh placed midway in the slab.

Sidewalks shall be five feet (5') minimum width in commercial areas and four feet (4') minimum width elsewhere, or as indicated on the approved plans. Provide 1/4-inch construction/expansion joints perpendicular to the walk at twenty feet (20') intervals. A premolded bituminous expansion joint filler conforming with ASTM D1751 shall be set at every fifth construction joint and wherever walks abut existing walks, curbs or buildings. The top of the filler shall be set 1/8 inch below the finished walk surface.

All construction and expansion joints shall be cleaned with compressed air and caulked to a depth of at least 1/2 inch with DeWitts Caulk and Marine Seam Compound No. 89SG Natural, sun grade.

The concrete shall be finished to produce a smooth broom finished surface; with crack control joints scored perpendicular to the walk at five feet intervals so that the finished walk will be marked in squares, finished along edges and joints using an edging tool and lightly broomed to a uniform texture.

The completed walk shall be sprayed with one coat of DeWitt Rain Stop at the rate of one hundred square feet (100 sq. ft.) per gallon or other approved silicone masonry water repellent. During extremely hot weather or when rainfall is imminent before the concrete has acquired sufficient set, the surface shall be covered with waterproof paper blankets conforming to ASTM C171. Blankets shall be securely weighted to hold them in place for a period of at least forty-eight (48) hours.

Provide ramps at all corners and crosswalks conforming to the requirements of the Americans with Disabilities Act.

3.2.7 GUTTERS

Base Course

The base course for gutters shall be an extension of the road base and shall be placed and compacted at the same time the road base is placed. The base course shall extend at least twelve inches beyond the outside edge of the gutter and to the ground surface.

Portland Cement Concrete

Ready-mixed concrete, forms, broom finishing and curing shall conform to these specifications and the following:

Gutters shall be thirty inches (30”) wide with 1/4-inch construction/expansion joints perpendicular to the gutter at ten feet (10’) intervals. A premolded bituminous expansion joint filler conforming with ASTM D 1751 shall be set at every fifth construction/expansion joint and wherever the gutters abut inlet apron slabs or existing gutters.

The top of the filler shall be set 1/8 inch below the finished gutter surface. Do not score the gutter between construction/expansion joints. The concrete shall be finished to produce a smooth broom finished surface.

All construction/expansion joints shall be cleaned with compressed air and caulked to a depth of at least 1/2 inch with DeWitt's Caulk and Marine Seam Compound No. 89SG, Natural, sun grade.

The completed gutter shall be sprayed with one coat of DeWitt Rain Stop at the rate of one hundred square feet (100 sq. ft.) per gallon or other approved silicone masonry water repellent. During extremely hot weather or when rainfall is imminent before the concrete has acquired sufficient set, the surface shall be covered with waterproof paper blankets conforming with ASTM C171. During weather when temperatures fall below 40^{o}F, cover completed gutter with blankets of straw or insulation and protect from freezing. Blankets shall be securely weighted to hold them in place for a period of at least forty-eight (48) hours.

Any gutter placed outside of tolerance of 1/2 inch of the established line, 1/4 inch of the established grade or exhibiting cracking or chips larger than 1" in greatest dimension shall be removed and replaced at the Contractor's expense prior to topping the road. Damaged gutters shall be completely replaced between existing control joints unless the Town determines that the damage can be replaced by removing only one-half of the distance between control joints. In no case will more than one construction joint be added to an original gutter section.

3.2.8 CURBS

General

Where curbing is used as a substitute for concrete gutters, pavement width will be increased thirty inches (30") in front of each curb for drainage.

Base Course

A twelve-inch (12") deep, twenty-four (24") wide crushed stone base course shall be placed under all curbs. The road base course shall extend to the face of the curb and be placed with the remainder of the road base course.

Stone Curbs

Provide sound durable sawed top, split face granite curbing, four inches (4”) thick and sixteen inches (16”) deep, set vertically with a six to seven inch exposed face. Straight curbing shall be three feet (3’) minimum length. Radius curbing shall be accurately pre-cut by the quarry for a fifty feet (50’) and smaller radius. For curb radius of fifty-one (51’) to one hundred feet (100’), use two to three feet long straight lengths. Transition pieces shall be used for driveway areas and handicap accesses.

Set the curb on dry concrete mix for at least twelve inches (12”) on each side of the joint for leveling. Provide continuous poured concrete backing under and extending at least eight inches (8”) up the back of the curb. Ready-mixed concrete shall conform with Sub-Section 2.6 of these Specifications.

Fill the joints with cement mortar. Mortar shall consist of one part Portland Cement and one part mortar sand mixed stiff for rodding. Rod each joint full of mortar and finish the exposed edges with a trowel.

Backfill the front of the curb with tamped crusher-run road base material and behind the curb with earth and topsoil as required.

Any curb placed outside of tolerance of 1/2 inch of the established line or 1/4 inch of the established grade shall be removed and replaced at the Contractor's expense.

Conventionally Formed Curb

Casting Segments

Curb shall be cast in segments having a uniform length of ten feet. Separate segments with construction joints with provisions made at each joint for 1/4-inch contraction.

Expansion Joints

3/4 inch wide premolded bituminous expansion joint filler conforming to ASTM D1715 shall be placed at every fifth construction joint. Cut the filler material to conform to the cross section of the curb.

Forms

Forms shall be steel or wood, straight and free from warp of such construction that there will be no interference to inspection for grade or alignment. All forms shall extend for the full curb depth and shall be braced and secured adequately so that no displacement from alignment will occur during placing of concrete.

Concrete Placing and Vibrating

Place concrete in forms and compact with an approved immersion type mechanical vibrator. The vibrator shall be of the size and width capability of thoroughly vibrating the entire mass without damaging or misaligning the forms. Forms shall be left in place for twenty-four (24) hours or until the concrete has sufficiently hardened, so they can be removed without injury to the curb. Upon removal of the forms, the exposed faces of the curb shall be immediately rubbed to a uniform surface. Rubbing shall be accomplished by competent finishes.

Concrete Curbing

Moist curve all concrete for a minimum of fourteen (14) days or apply a clear membrane-curing compound.

Protection

The Contractor shall keep the curb clean, aligned and protected from damage until dedication of the work. Any section curb damaged prior to dedication shall be removed and replaced for the full length of the casting segment.

Machine Formed Concrete Curb

Machine Forming

Machine-form concrete curb to the proper line and grade. The Engineer may require the Contractor to demonstrate that the specific equipment he proposes to use is capable of satisfactorily placing the concrete mix. Any curb placed outside of tolerance of 1/2 inch of the established line or 1/4 inch of the established grade shall be removed and replaced at the Contractor's expense.

Contraction Joints

Contraction joints shall be formed or saw-cut to a width of 1/8" minimum, maximum 4", and to a depth of 1 1/2". If saw-cut, this must be done within eight (8) hours of placement. This cut shall extend slightly below the surface of the adjacent pavement and shall be spaced at ten-foot (10') intervals. The saw-cut or formed joints shall be left unfilled.

Expansion Joints

3/4 inch wide premolded bituminous expansion joint filler conforming to ASTM D1715 shall be placed every fifth construction joint. Cut the filler material to conform to the cross section of the curb.

Concrete Curing

Moist cure all concrete for a minimum of fourteen (14) days or apply a clear membrane-curing compound.

Protection

The Contractor shall keep the curb clean, aligned and protected from damage until dedication of the work. Any section curb damaged prior to dedication shall be removed and replaced for the full length of the casting segment.

3.2.9 GUIDE POSTS

Guide posts shall be fabricated from sound straight grained, stress grade timber, 6 x 8 inch nominal size and eight feet (8') long. Wood shall be untreated redwood, red cedar, cypress or black locust. Top horizontal edges shall be chamfered two inches (2") on all sides and shall project four feet (4') above finished grade. Exposed vertical edges shall be slightly rounded 1/4 inch. Each post shall set plumb and shall be uniformly positioned in respect to alignment and height of adjacent posts. Exposed portions shall be prime painted with Mobil 17W4 and finish coated with Mobil 20Y18 safety yellow.

3.2.10 MAIL BOXES

Grouped mail boxes (concrete base) are required for mobile home parks, multifamily developments, cul-de-sacs and single family residential developments with an average lot size of less than 20,000 sq. ft. as indicated on the approved drawings or as directed by the Highway Superintendent.

Group mailboxes shall be constructed of nonferrous materials and shall be a type approved by the U.S. Post Office. Group mailboxes must be installed and operable before the Town can issue a Certificate of Occupancy.

Posts and supporting frame for grouped mailboxes shall be fabricated from either structural timber treated with an approved wood preservative or galvanized structural steel shape designed to support and resist a wind load of thirty (30) p.s.f. applied perpendicularly.

3.2.11 PAVEMENT MARKINGS

Stripes shall be painted as directed by the Highway Superintendent and in conformance with NYSDOT Standard Specifications, Section 640.

3.2.12 LIGHTING

Whenever lighting is proposed, the Luminaries shall be of the non-glare type similar in all respects to highway lighting standards set forth in the latest National Electrical Manufacturers Association (NEMA) Standards.

Provide NYSDOT Class "A" concrete for properly designed bases in accordance with Town Standards.

Supporting standards including shaft and bracket arm assemblies shall be designed to adequately support the luminaire. Comply with Standard Detail A.39.

Class A lighting shall be a Cobra Head 250 watt high-pressure sodium lamp fitted with twist type photoelectric control system; integral power mode ballast assembly; ballast cover, with terminal block. Provide finish aluminum light pole with nominal mounting height of twenty-one feet (21'), 4" x 6" hand hole and fuse holder at base with flanged connection to precast concrete light base.

Class B lighting shall consist of 150 watt high-pressure sodium pole mounted light fixtures with twist type photoelectric control. Class B lighting shall be mounted on fiberglass direct burial light poles fourteen feet high, with hand hole and fuse holder at base. Light fixture shall be McGraw Traditionaire or similar fixture approved by Utility Company, Town Engineer and Planning Board.

All lighting required on the plans shall be installed by Developer at his expense and completed and operational prior to dedication.

All material and workmanship shall conform to the latest requirements of the National Electrical Code and the Utility Company serving the development.

3.2.13 STREET TREES

Whenever street trees are proposed and specified, they shall be planted outside the street right-of-way on private property at least twenty feet (20') from the back edge of gutter, curb or edge of pavement, or as shown on approved plan. Proposed trees shall not be planted over proposed or existing utility lines. Variety of trees shall be: Red or Celebration Maple, London Plane, American and European Linden and any other hardy variety suitable to our climate as shown on drawings approved by the Planning Board.

3.2.14 FINE GRADING

After completion of other site work, topsoil shall be uniformly spread, fine graded and seeded. All areas disturbed as a result of the development shall be seeded within ten (10) days of completion of final grading, or, if areas are uncompleted within thirty (30) days of beginning earthwork, the bare soils must receive temporary seeding to prevent erosion. All land to be dedicated to the Town must be seeded and maintained for a period of thirty (30) days or until a uniform stand of grass is established and accepted by the Town in dedication.

3.2.14.1 Topsoil

Provide four inches (4”) minimum depth of screened topsoil consisting of excavated and reused or imported material free of roots, rocks larger than one inch (25 mm), subsoil, debris, noxious weeds such as nutsedge and quackgrass and foreign matter, 2-6% by weight of fine textured stable organic material, more than twenty percent (20%) passing #200 sieve, less than fifteen percent (15%) clay, less than ten percent (10%) gravel by volume.

Spread the topsoil in dry conditions; apply agricultural limestone at the rate of ten (10) pounds per one hundred (100) square feet (two tons per acre) and 10-10-10 commercial fertilizer at the rate of two (2) pounds per one hundred square feet (800 pounds per acre). Lime and fertilizer shall be applied using an approved spreader. Mix the fertilizer and lime with the topsoil using a pick-up draft or York rake. Areas to be erosion seeded need not be hand raked. Areas to be seeded as lawn shall be fine graded by mechanical means and finished graded by hand rakers.

3.2.15 SEEDING

Erosion Control Seeding

Use for all areas void of vegetation disturbed during construction of development except those areas being seeded for lawn purposes.

Site preparation will include:

1) Seed Bed Preparation

   Scarify to a minimum depth of four inches (4”) by use of a tractor with disking attachment or other suitable equipment; disking shall continue until soil is of a uniform texture. Power rake (rockhound) to exact well draining grades, removing rubbish, foreign matter, stones two inches (2”) in diameter and larger and any other deleterious materials.

2) Soil Amendments

   - Lime to pH of 6.0
   - Fertilizer with 600 lbs. of 5-10-10 or equivalent per acre (14 lbs./1000 sq. ft.)

3) Seed Mixtures

   <u>Temporary Seedings</u>

   - Perennial Ryegrass @ 30 lbs. per acre (0.7 lbs/1000 sq .ft.)
   - Certified 'Aroostook' Winter rye (cereal rye) @ 100 lbs. per acre (2.5 lbs./1000 sq. ft.)

Use winter rye if seeding in October/November.

Permanent Seedings
Rough or occasionally mowed areas (See Table below):

	Lbs./Arce	Lbs./1000 sq. ft.
Empire Birdsfoot	8	.20
Trefoil and Common White Clover	8	.20
Tall Fescue	20	.45
Ryegrass (Annual)	20	.45
Redtop	2	.05
Ryegrass (Perennial) [1]Add inoculate immediately prior to seeding	5	.10

4) Maintenance of seed areas:

- The grassed areas shall be maintained by the Contractor immediately upon completion of seeding and mulching and for a minimum of thirty (30) days or longer, as required, to establish a uniform stand of specified grasses completely free of weeds to satisfaction of Owner's on-site representative.

- Water immediately after mulching to saturate soil to ½-inch depth. Water all seeded areas to one-inch (1") saturation no less than two (2) times per week. Watering with hydroseeding is not an acceptable method for watering lawn area.

- Maintain mulch daily or more often as required. Contain mulch on site and clean up any areas where mulch is blown by wind.

- Repair all washout and gullies; re-rake, re-seed and re-mulch as necessary.

Grassed Waterway (drainage swale)

Use for all areas to be utilized as drainage ways for surface drainage of stormwater.

Site preparation will include:

1) Seed Bed Preparation

Scarify if compacted. Removed debris and obstacles such as rocks, stumps or any other deleterious material.

2) Soil Amendments

- Lime to pH of 6.0
- Fertilizer with 600 lbs. of 5-10-10 or equivalent per acre (14 lbs./1000 sq. ft.)

3) Seed Mixtures

Temporary Seedings

- Ryegrass (annual or perennial) @ 30 lbs. per acre (0.7 lbs/1000 sq .ft.)
- Certified 'Aroostook' Winter rye (cereal rye) @ 100 lbs. per acre (2.5 lbs./1000 sq. ft.)

Use winter rye if seeding in October/November.

Permanent Seedings
Rough or occasionally mowed areas (See Table below):

	Lbs./Arce
Kentucky Bluegrass	40
Common White Clover[1]	8
Ryegrass (Annual)	20
Tall Fescue	20
Ryegrass (Perennial)	30

[1] Add inoculate immediately prior to seeding

4) Time of Seeding

The optimum time for permanent seedings with legumes (birdsfoot, trefoil or clover) is early Spring. Permanent seedings may be made at any time of year if properly mulched and adequate moisture is provided. Portions may fail and may need reseeding the following year. Developer must reseed any areas of seeding that failure the following year.

Temporary seedings should be made within twenty-four (24) hours of completing construction or disturbance. If not, the soil must be scarified prior to seeding.

5) Method of Seeding

Broadcasting, drilling with cultipack type seeder or hydroseeding is acceptable. Good soil to seed contact is the key to successful seedings.

6) Mulching and Mulch Anchoring

Mulching is essential to obtain a uniform stand of plants.

Maintenance will include:

1) The grassed areas shall be maintained by the Contactor immediately upon completion of seeding and mulching and for a minimum of thirty (30) days or longer, as required, to establish a uniform stand of specified grasses completely free of weeds to satisfaction of Owner's on-site representative.

2) Water immediately after mulching to saturate soil to ½-inch depth. Water all seeded areas to 1" saturation no less than two times per week. Watering with hydro seeding is not an acceptable method for watering lawn area.

3) Maintain mulch daily or more often as required. Contain mulch on site and clean up any areas where mulch is blown by wind.

4) Repair all washout and gullies; re-rake, re-seed and re-mulch as necessary.

5) Contractor shall request inspection by Owner's Representative to verify an acceptable establishment of uniform germinated seeded areas and completion of maintenance requirements for this section.

Lawn Areas

Use for all areas to be used and maintained as lawn areas for residential, commercial or industrial development.

Site preparation will include:

1) Seed Bed Preparation

Scarify if compacted. Remove debris and obstacles such as rocks and stumps.

2) Soil Amendments

- Lime to pH of 6.0.
- Fertilizer with 600 lbs. of 5-10-10 or equivalent per acre (14 lbs./1000 sq. ft.).

3) Seed Mixtures

Temporary Seedings

- Ryegrass (annual or perennial)@ 30 lbs. per acre (0.7 lbs/1000 sq. ft.).
- Certified 'Aroostook' Winter rye(cereal rye) @ 100 lbs. per acre (2.5 lbs./1000 sq. ft.).

Use winter rye if seeding in October/November.

Permanent Seedings

Seed all areas disturbed by construction activities with the following mixture at 110 lbs per acre:

Blend	Parts	Purity	Germination
Avalanche Kentucky Bluegrass	30%	90%	87%
Thermal Kentucky Bluegrass	30%	90%	
Treasure Chewing Fescue	10%	90%	85%
Nordic Hard Fescue	10%	90%	90%
Splendid or Inspire Perennial Ryegrass	20%	90%	90%

Lawn seed for grassed areas: fresh, clean, new crop, delivered in original packages, unopened, bearing guaranteed analysis.

4) Time of Seeding

The optimum time for permanent seedings with legumes (birdsfoot, trefoil or clover) is early Spring.

Permanent seeding may be made at any time of year if properly mulched and adequate moisture is provided. Mid-Summer is not a good time to seed; however, these seedings, if construction is complete, will facilitate covering the land. Portions may fail and may need reseeding the following year.

Temporary seeding should be made within twenty-four (24) hours of construction or disturbance. If not, the soil must be scarified prior to seeding.

5) Method of Seeding

Broadcasting, drilling with cultipack type seeder or hydroseeding is acceptable. Good soil to seed contact is the key to successful seedings.

6) Mulching and Mulch Anchoring

Mulching is essential to obtain a uniform stand of plants.

Maintenance will include:

1) The grassed areas shall be maintained by the Contractor immediately upon completion of seeding and mulching and for a minimum of thirty (30) days or longer, as required, to establish a uniform stand of specified grasses completely free of weeds to satisfaction of Owner's on-site representative.

2) Water immediately after mulching to saturate soil to ½-inch depth. Water all seeded areas to 1" saturation no less than two times per week. Watering with hydroseeding is not an acceptable method for watering lawn area.

3) Maintain mulch daily or more often as required. Contain mulch on site and clean up any areas where mulch is blown by wind.

4) Repair all washouts and gullies; re-rake, re-seed and re-mulch as necessary.

5) Contractor shall request inspection by Owner's Representative to verify an acceptable establishment of uniform germinated seeded areas and completion of maintenance requirements for this section.

3.2.16 MONUMENTS AND PROPERTY MARKERS

3/4" x 3-1/2' long standard steel pipes shall be set in concrete, flush with finished grade to monument the street right-of-way lines at all angle points, points of curvature, points of change in curvature, points in reverse curvature and points of tangency. Iron pins shall mark all other property corners and lot corners of the development. Monuments and property markers shall be set in accordance with requirements for second order surveying.

3.2.17 LOT DRAINAGE

All residential lots shall be graded to provide positive surface drainage to sides, front and rear. Provide field inlets, where four (4) or more lots or two (2) acres tributary to inlet, in swales to collect storm drainage and convey it to the storm sewer or major drainage swale. Inspection easements shall be provided over drainage swales.

Erosion control measures for all developments of two (2) or more residences must be designed and installed and must be in accordance with recommendations presented in "New York Guidelines for Urban Erosion and Sediment Control".

Sediment control shall be provided during construction period to prevent sediment from entering storm drainage sewers and area watercourses. Utilize standard details herein and measures presented in "Guidelines" to provide positive measures to control sediment.

3.2.18 SIGHT DISTANCE

Construction drawings shall show sight distances at all accesses to existing roads. Sight distances for proposed new drives must be shown on drawings. All intersection signage, etc. shall conform with New York State Uniform Traffic.

3.3 EARTHWORK

3.3.1 EXISTING UTILITIES STAKEOUT

Before excavating, notify utilities for markout of existing utilities.

3.3.2 STRUCTURE EXCAVATION

Provide sheeting, shoring, bracing, steel sheet piling, pumping of water and well points, as required, to install structures shown on the approved drawings. The methods used shall be subject to review of the Town Engineer.

Keep excavations dry at all times. Slope, support and stabilize the banks to protect workmen and adjacent structures or pipelines. Particular care shall be taken to prevent floatation or movement of structures during construction.

If material at the bottom of any excavation becomes soft and unstable as a result of not keeping the excavation dewatered, such material shall be removed and replaced with NYSDOT Class "A" Concrete for structures or do whatever else is necessary to correct the condition. If any excavation is made beyond the depth on which any structure rests, the excess depth shall be refilled with NYSDOT Class "A" Concrete for structures.

Rocks and boulders shall be removed to provide a minimum clearance around the structure of one and a half feet (1-1/2').

3.3.3 TRENCH EXCAVATION

Provide sheeting, bracing, shoring, pumping of water and well points as required to install the pipelines shown of the approved drawings. The use of portable shields will be permitted only if it can be demonstrated that pipe joint separation will not occur when the shield is advanced in the trench.

Trenches shall be excavated only so far in advance of pipe laying as is necessary for installation of the pipe.

Under muddy conditions, the Town Engineer may require that sump holes with barrel liners be installed for use in dewatering trenches and that crushed stone be used to support the pipe. Under no circumstances shall pipe be installed on a soft or muddy trench bottom.

Other methods for stabilizing trench bottoms, such as the use of porous mats, will be considered if conditions cannot be corrected by use of crushed stone.

Trenches for pipe considered as rigid conduit (RCP, CSP, CMP, DIP etc.) shall be excavated to the depth required to provide uniform continuous bearing of the pipe barrel on solid undisturbed earth between joints. Trenches for flexible conduit (PE, PVC, CPP) shall be undercut a maximum of six inches (6") below the depth required and the excess depth backfilled prior to pipe placement with a pipe cradle or bedding consisting of NYSDOT Item 703.0201 clean crushed stone, sizes No. 1 and No. 2, equally mixed or crusher run. Perforated pipe shall be totally encased with bedding material. Trench bedding foundations shall be installed as indicated on approved details.

The bottom of the trench in either earth or crushed stone cradle shall be prepared accurately with hand tools so that the pipe barrel is supported uniformly for a width equal to 0.6 of the pipes I.D.. Dig a hole for each pipe joint so that the bell or coupling is not supporting the weight from the pipe barrel.

The trench width at the top of the pipe shall not exceed that shown on the approved drawings. These widths must be maintained at all times until backfill is complete, even if it becomes necessary to leave sheeting and bracing in place.

Rock and boulders shall be removed to provide a minimum clearance of six inches (6") below and twelve inches on each side of all pipes.

3.3.4 BACKFILL

Excavated material which is suitable for backfill (select material) shall be separated during excavation from unsuitable material such as rock, boulders, frozen earth, paving materials, organic clumps and concrete and stones larger than eight inches in their greatest dimension. Such materials are not to be used for backfill and shall be hauled away from the project site. The site for disposal shall be arranged for by the Developer or his Contractor and approved by the Town Engineer.

Excavations shall be backfilled immediately after installation of facilities but only after inspection by the Developer's Engineer and Town personnel.

Backfill around structures and pipelines shall be equally placed from all sides in such a manner as not to move or unequally stress the structure or pipeline.

From the bottom of the trench or top of the pipe bedding to a level one foot (1') over the top of the pipe, select safety backfill shall be deposited by hand in six inch (6") layers and compacted by tamping. Surface of safety backfill shall be tamped with approved mechanical compaction equipment. Stones larger than two inches in their greatest dimension shall not be used in this safety backfill.

Where excavations occur beneath proposed pavements, gutters or walks, the entire depth above the safety backfill shall be backfilled and compacted in six-inch (6") lifts to the base course using approved crusher-run stone as specified in Sub-section 2.5 of these specifications. The location of proposed pavements, gutters and walks shall be staked out by the Developer's Engineer so that this special backfill can be accurately placed.

Where any pipe passes through a structure or trench excavation, No. 1 or No. 2 crushed stone shall be placed beneath the pipe for a width adequate to support the pipe with 1:1 side slopes to the bottom of the excavation.

Any settlement of trenches or around structures shall be promptly refilled and regraded.

3.3.5 HIGHWAY CROSSINGS

Pipe Casings

Provide pipe casing for pipelines and utilities crossing beneath existing State, County and Town highways when shown on the approved drawings. Casings shall be in accordance with the requirement of the highway permits and the following:

- Material shall be continuously welded steel pipe per ASTM A-139 and AWWA C202. Grade B minimum wall thickness for 18 inch diameter of 0.25 inch, 20 inch diameter of 0.281 inch, 22 inch diameter of 0.312 inch, and 24 inch diameter of 0.344 inch. Sand fill shall be NYSDOT sub-section 703-07 concrete sand.

- Separate lengths of steel pipe casing shall be joined by welding. Install the casing by use of an approved horizontal auguring machine. The size of the casing shall be selected by the Contractor but shall not be less than eighteen inches (18"). Obstruction encountered during the boring operation shall, if possible, be removed through the casing before making another attempt in another location.

- Extreme care shall be exercised to protect existing water mains, gas mains, storm drains and other utilities.

Open Cut

Open cutting of any Town Highway will require the issuance of a permit from the Town Highway Department. Open cutting any existing highway, pavement, walk, gutter or curb shall be made only after approval of the Highway Superintendent involved and/or in accordance with the requirements of the highway permit and the following:

- The pavement, walk, gutter, curb or shoulder shall be neatly cut along the edges of the proposed trench by sawing with suitable equipment. Generally, walks, gutters and curbs shall be removed back to the construction joint if such joint falls within four feet (4') of the edge of the trench. Existing asphalt pavement shall be cut back a minimum of twelve inches (12") to provide a key for replacement pavement to abut existing.

- After installation of the pipeline or utility, the entire trench depth shall be backfilled and compacted in six-inch (6") lifts using controlled density backfill as specified in the highway permit.

- All open cuts, when allowed for by the Town Highway Superintendent, shall be backfilled with controlled density backfill (500 PSI minimum compressive strength). Controlled density backfill (K-crete or approved equal) shall consist of Type I cement (3% of dry weight), sand (85% of dry weight), fly ash (12% of dry weight) and water. Slump shall not exceed one inch (1"). Controlled density backfill such as "K-crete" shall be installed in the entire trench depth to the specified base material under shoulders, gutter, curbs and pavements.

- Temporary resurfacing required by the Highway Superintendent consisting of a minimum four inch (4") compacted thickness of cold mix asphalt concrete. Compaction shall be by use of a ten-ton tandem roller. Contractor shall maintain temporary resurfacing continuously until permanent resurfacing is installed.

- Permanent resurfacing shall match that of the existing facility that was removed but in no case shall be inferior to those facilities specified in these construction specifications. Sections of curbs and gutters so removed shall be reset in concrete and restored whenever possible.

3.3.6 STREAM CROSSINGS

Stream crossings shall be made strictly in accordance with the requirements of NYSDEC stream crossing permit.

3.4. DRAINAGE IMPROVEMENTS

3.4.1 CULVERT AND STORM DRAIN PIPE

Twelve inch (12”) is the minimum diameter pipe to be used. Corrugated metal (steel) pipe (CMP, CSP) shall be round helically or circumferentially corrugated 2 x 1/2 inch galvanized steel pipe, fully coated inside and out with standard galvanized connecting bands. Proposed use of lined or smooth bore CMP shall require the review and approval of the Town Engineer. The wall thickness shall be as shown on the approved drawings but not less than the following:

Pipe I.D.	Minimum Gauge
12” - 48”	16
54”	14
60” and 66”	12
72”	10
78” and 84”	8

Corrugated Metal Pipe Arches (CMPA) shall be used only where low head pipe is a requirement and shall conform with the details shown on the approved drawings. Pipe anchors shall be plain galvanized.

Reinforced Concrete Pipe (RCP) conforming with ASTM C76 Wall B shall be used where pipe is subjected to standard highway loadings. The class of pipe shall be as shown on the approved drawings but not less than Class III for pipes twelve inch (12”) through eighty-four inch (84”) I.D.. Joints shall conform with ASTM C443 rubber gaskets. Pipe shall be bituminous coated inside.

Concrete Pipe (CP) conforming with ASTM C14 Table 1, Class 2 for pipes twelve inch (12”) through twenty-four inch (24”) I.D. shall be used where pipe is not subjected to standard highway loadings. Joints shall conform with ASTM C443 rubber gaskets. Pipe shall be bituminous coated inside.

Polyethylene Pipe (PE) conforming with ASTMF 405, ASTMF 667, AASHTOM 252 and AASHTO M294 for storm sewer pipes twelve inch (12”) through thirty-six inch (36”) is acceptable. Pipe shall have smooth interior with ribbed exterior. Install in fine granular material pipe bedding. Installation shall conform fully with Manufacturer's recommendations.

3.4.2 UNDERDRAINS

The installation of storm drains at wet or low points in the subgrade and other specific locations indicated on the approved drawings or required by the Town Engineer during construction shall be provided with perforated plastic underdrains conforming with these specifications.

Perforations shall be made before galvanizing and shall be in the bottom half of the pipe, at least 22-1/2 degrees below the horizontal axis of the pipe. A minimum of sixteen (16) perforations, 1/4 inch in diameter, per lineal foot of pipe, shall be provided. Underdrain pipe in the weep-trench below gutters shall be as specified in these specifications.

Granular material conforming with NYSDOT Item 703.0201, No. 1 and No. 2 crushed stone mixed equally shall be provided around the pipe as detailed on the approved plans.

3.4.3 PIPE INSTALLATION

Crossover pipes serving a single or multiple inlet shall be twelve inch ID pipe with minimum sixteen (16) gauge wall thickness.

Install pipe accurately to the alignment and grade shown on the approved plans or as otherwise directed. Pipe laying shall proceed up stream.

Pipe shall be carefully lowered into the trench to avoid shock or damage. Keep interiors of pipe free from dirt or other objects. Make joints in accordance with recommendations of the pipe manufacturer. Plug the upstream end of the pipe when pipe laying is not in progress.

Corrugated metal pipe shall be installed so that circumferential seams are placed so that laps are in the downstream direction.

Concrete pipe shall be installed with the spigot end downstream.

Field cutting of pipe lengths shall be done in a neat and workmanlike manner so as to leave a smooth end cut at right angles to the axis of the pipe.

3.4.4 INLETS

Finished inside dimensions of storm inlet structures shall be two feet (2') square and no deeper than three feet (3') from grate surface. Structures with invert depths greater than three feet (3') or structures receiving flow from more than one upstream inlet shall require manholes. Structures shall be constructed with concrete bases and inverts, precast concrete, cast-in-place top course, walls, cast iron frame and grates and reinforced concrete aprons for gutters, all in accordance with the detail shown on the approved drawings and the following:

Concrete Bases and Inverts

Ready-mixed concrete shall conform with NYSDOT Table 501-3 Class "A" general purpose structural concrete (minimum 3500 PSI compressive strength). The base slab shall be at least four feet (4') square and six inches (6") minimum thickness. Bottom of the inlet structure base slab shall be installed at a depth of at least three and one-half feet (3 ½') below finished grade. Reinforcing is not required.

Forms for base slabs shall be laid out so that the completed structure will be square and in the required horizontal and vertical location with respect to the edge of pavement, gutter or curb. Forms shall be straight and rigid two inch (2") nominal thickness wood or prefabricated steel.

Concrete inverts shall be placed after completion of the masonry walls and shall be formed, shaped and troweled smooth so that they will be self-cleaning. Flow channel shall be vitreous clay, brick or PVC pipe shaped to conform with the bottom. Troughs shall be shaped to conform with the bottom third of the connecting storm drain pipes.

In lieu of pour-in-place concrete, precast bases may be used.

Precast

Inlet structures shall be precast concrete, factory coated inside and outside with two coats of approved heavy duty coal tar sealer. Cast-in-place concrete shall be used as top course for setting frame and grate. Cut outs for connecting pipes shall be provided two inches (2") larger than pipe O.D.. Annular space between pipe and inlet structure wall shall be packed with non-shrink grout.

Coatings

All structures shall be sealed inside and outside including grouted joints, lift holes and pipe inlets with heavy duty water repellent protective coating made of coal tar which complies with ASTM Specification D-45, Type B.

Frame and Grate

Cast iron frame and grate shall be square reversible frame with grate. Conform with AASHTO standards for 16,000 pound wheel loading. Set the flange in a full mortar bed on the concrete top course. For gutters, reverse the frame by placing the flange on top and embed the frame in the concrete apron slab. Castings shall be bituminous coated Neenah R1878-ASG or Syracuse Castings Model 9187.

Concrete Aprons for Gutter Inlets

After thorough consolidation and compaction of road base material around the inlet structure, construct reinforced concrete aprons as detailed on the approved drawings.

Ready-mixed reinforced concrete, forms, wire fabric reinforcement, broom finishing and curing shall conform with these specifications. If cracks occur between the inlet frame and apron slab, caulk with DeWitt's Caulk and Marine Seam Compound.

3.4.5 MANHOLES AND INLET MANHOLES

Storm manholes and inlet manholes shall be four feet (4') (minimum) ID (large size structures may be required by Town Engineer for multiple penetration and/or larger size pipes) and constructed with concrete bases and inverts, precast concrete walls and tops, cast iron frames with covers or grates and reinforced concrete aprons for gutters, all in accordance with the shop drawings, the approved drawings and the following:

Concrete Bases and Inverts

Ready-mixed concrete shall conform with NYSDOT Table 501-3 Class "A" general purpose structure concrete (minimum 3500 PSI compressive strength). The base shall be at least five feet four inches (5'4") in diameter and six inches (6") minimum thickness. Bottom of the manhole base slab shall be installed at a depth of at least four feet (4') below finished grade. Reinforcing is not required.

Concrete inverts shall be placed after completion of the masonry walls and shall be formed, shaped and troweled smooth so that they will be self-cleaning. Flow channel shall be vitreous clay , brick or PVC pipe shaped to conform with the bottom third of the connecting storm drain pipes and shall provide smooth transition through the manhole.

In lieu of poured-in concrete, precast concrete bases may be used.

Precast Concrete Bases, Walls and Tops

Precast reinforced concrete units for bases, walls and tops shall conform with ASTM C478 and the following:

- Precast bases for four foot (4') diameter manholes shall be sixty-four inches (64") in diameter and eight inches (8") thick. All units shall be factory coated inside and out with two (2) coats of an approved heavy duty sealer. Base units or wall units shall have cutouts two inches (2") larger than the OD of the connecting pipes. The annular space between the pipe and manhole wall shall be packed with concrete. Manhole steps at twelve inch (12") centers shall be installed in the walls by the manufacturer. All joints shall be made using a full bed of mortar.

- Flat slab tops shall be used except that eccentric cone tops may be used in lieu of flat slab tops for manhole more than eight feet deep.

Coatings

All structures shall be sealed inside and outside with heavy duty water repellent protective coating to be Koppers RC-30 Bitumen Black in conformance with NYSDOT Spec. 702-10. Seal all joints and openings in field with cement/epoxy mortar (Comproco or equivalent) interior and exterior.

Manhole Steps

Steps shall be Part Number 152925 as manufactured by Alcoa from aluminum alloy 6061-T6, solid extruded sections. The portion of step embedded in the concrete or masonry shall be painted with 15 mil coat of Mobil 35J10 Hi-Build Bituminous Coating.

Frame and Cover for Manholes

Cast iron frame and cover shall be cast iron conforming to AASHTO Standards for 16,000 pound wheel load with type B indented top design solid cover. Set the flange in a full mortar bed on the cover slab or on top of the cone. Use up to a maximum of eight inches (8") of precast concrete grade rings or cast-in-place concrete in adjusting height of the frame. Set the top of frame to an elevation 1/4 inch below finished grade in paved areas and to meet finished grade in other areas. Castings shall be bituminous coated. Cover shall be Neenah self-sealing type (or approved equal) for sanitary sewer installation. Where the manhole is located in designated flood zone or flood prone zone, use watertight manhole frame and cover assembly.

Frame and Grate for Inlet Manholes

Cast iron frame and grate shall conform with Sub-section 3.4.4 of these specifications.

3.4.6 HEADWALLS AND ENDWALLS

Provide reinforced concrete headwalls and endwalls conforming with the details on the approved drawings and as follows:

- Ready-mixed, reinforced concrete shall conform with NYSDOT Table 501-3 Class "A" General Purpose Structural Concrete (minimum 3500 PSI compressive strength) and Sub-sections 555 - 3.03 Forms, 555 - 3.04 Handling and Placing and 555 - 3.08 A Finishing Surfaces Exposed to View.

- Slabs and walls shall be at least eight inches (8”) thick. Exposed edges shall be provided with a one inch (1”) chamfer.

- Immediately after stripping the forms, the completed structure shall be sprayed with one coat of DeWitt Rain Stop at the rate of one hundred (100) square feet per gallon. During extremely hot weather, cover the structure with waterproof paper or blankets.

- Reinforcing steel shall conform with ASTM A615 Grade 40 deformed billet steel reinforcing bars. Minimum steel requirements shall be No. 4 bars at twelve inch (12”) centers in the tensioned face of the slab or wall. Use No. 4 bent bar dowels to tie walls into foundation slabs.

3.4.7 END SECTIONS

For each end of culvert or storm drain, minimum size of twelve inches (12”), provide a flared end section as indicated on the approved drawings. For fifteen inches (15”) and larger outlets, provide outlet protection bars per standard drawing and as follows:

Corrugated Metal Pipe

CMP end sections shall be galvanized steel with connection band and in accordance with the following:

Pipe ID	Minimum Gauge	Number of Pieces
12” – 24”	16	1
30”	14	1
36”	14	2
42” – 48”	12	2

Large diameter end sections generally shall not be used. In lieu of these end sections, provide headwalls as shown on the approved drawings.

Corrugated Metal Pipe Arch

CMPA end sections generally shall not be used. In lieu of these end sections, provide headwalls as shown on the approved drawings.

Concrete Pipe

RCP end sections shall be precast concrete units conforming in all respect to specifications for the pipe.

3.4.8 DITCHES AND SWALES

Provide ditches and swales in accordance with the sections shown on the approved drawings and as follows:

- Finished grades of ditches may be undercut by up to 0.2 feet if desired but high spots will not be permitted. Side slopes shall not be steeper than 2 1/2 horizontal to 1 vertical. Side slopes shall be spread with topsoil and provided with erosion seeding or lawn seeding conforming with these specifications.

3.4.9 RIP-RAP

Where indicated on the drawings or otherwise required by permit, provide stone filling or dry rip-rap in conformance with applicable portions of NYSDOT Section 620, Bank and Channel Protection.

3.4.10 CLEANING AND FLUSHING

Inlets and Manholes

Remove stones, dirt and debris from inlets and manholes before flushing storm drains. Do not wash these materials through the pipe system.

Culverts and Storm Drains

Before making a request for dedication, clean and flush all culverts and storm drains installed as part of the development.

If sediment, stones or other debris cannot be removed by means of approved sewer hydraulic hoses and jets, mechanical pipe cleaners shall be used to dislodge the obstructions. Furnishing of water shall conform with these specifications.

Ditches and Swales

Before dedication; silt, stone and debris shall be removed from ditch bottoms. Washouts shall be repaired and reseeded. Biodegradable erosion netting shall be used as required to establish stable growth.

3.4.11 DETENTION/RETENTION PONDS

Detention/retention ponds shall be constructed to control runoff from project. Retention ponds are strongly discouraged but may be approved by the Town subject to existing Town Policy.

All pond construction shall be planned and designed to allow maintenance. Inlet debris control facilities must be provided. Fencing is required by the Town to prevent entry to retention pond area. Pond outlet facilities shall prevent discharge of debris and control discharge rate to the undeveloped runoff rate. Side slopes must not exceed 1:3 to allow proper maintenance.

Pond construction must meet NYSDEC and U.S. Army Corp of Engineers Standards in addition to Town Standards.

3.4.12 RECREATION/FARM PONDS

Ponds shall be designed according to section 180-44 of the Town Code.

All structures designed to retain water must be designed by a NYS Licensed Professional Engineer. Design must be in accordance with current NYSDEC and U.S. Army Corps of Engineers guidance and regulations.

All ponds must be designed with adequate overflow facilities to prevent flooding of adjacent properties. Pond inlet and outlet structures must be designed to resist erosion. Design must accommodate one hundred (100) year storm operating under normal conditions without overflow of spillway and/or emergency release facilities.

Design of pond must not change drainage patterns for neighboring properties or create additional potential for flooding.

3.5 WATER SYSTEM IMPROVEMENTS

3.5.1 GENERAL

Water system piping and appurtenances shall comply with the Standard Specifications of the Wayne County Water and Sewer Authority.

3.6 INDIVIDUAL WELL SUPPLIES

3.6.1 LOCATION

Construct an individual well supply in an accessible location which is not subject to flooding and which provides the following minimum separation distances from potential sources of pollution:

Potential Source of Pollution	Minimum Separation to Well
Existing or proposed subsurface disposal field	100’ when upgrade
Existing or proposed subsurface disposal field	200’ when downgrade
Drywell for stormwater drainage	50’
Pit privy or outhouse	100’
Barnyard, silo or animal pens	100’
Watertight sanitary sewer	50’
Septic tank	50’
Distribution box	100’
Stormwater water drain	25’

3.6.2 DEPTH

The well shall be developed from a water bearing formation at a depth greater than twenty feet below the ground surface.

3.6.3 CASING

The depth of the casing shall extend from a point twelve inches (12”) above finished grade (at least two feet (2’) above possible flood level) down through the overburden and be firmly seated in rock. The drill hole through the overburden shall be the casing size plus four inches (4”) and the annular space around the casing shall be grouted.

Each section of casing shall be jointed with standard drive pipe couplings and full threaded joints or by watertight continuous butt-welding.

Finished casing shall be vertical and straightly aligned. Provide a watertight temporary well seal at the top of the casing and a watertight pitless adapter for the suction or discharge pipe to pass through the casing at a depth of four feet six inches (4'6") below finished grade.

The drill hole size into rock shall be six inches (6") and a casing will not be required.

3.6.4 YIELD TEST

Before being put in use, the well shall be tested for yield and drawdown for at least four (4) hours duration. The test pump shall have the same capacity as the expected pumping rate of the well under normal usage. The test pump shall operate continuously during the test until the water level drawdown is stabilized and the safe yield and drawdown is determined. A minimum sustained well yield of five (5) gallons per minute shall be obtained.

3.6.5 QUALITY

Water sampled from the well shall be analyzed for the maximum contaminant levels listed in Section 5-1.61 of the State Sanitary Code. Water supplied from the well for use in drinking, cooking, food preparation or dishwashing shall conform to the quality standards established by the State Sanitary Code.

3.6.6 DISINFECTION AND SAMPLING

After a satisfactory yield test is obtained, disinfect the well with sodium hypochlorite containing 5.25 percent available chlorine. Any standard household bleach such as Clorox or 101 is acceptable.

Mix two (2) quarts of bleach in ten (10) gallons of water. Pour the solution into the well while it is being pumped. Keep pumping until the chlorine odor is detected at the faucet location and recirculate the water through a hose back into the well casing for at least one (1) hour. Then shut off the pump and allow the chlorine to remain in the system.

Mix two (2) quarts of bleach in ten (10) gallons of water and pour the chlorine solution into the well. Allow the well to stand without pumping for twenty-four (24) hours.

Pump the well to waste through the building service and away from grass or shrubs until the chlorine odor disappears. A slight amount of chlorine may persist for seven (7) to ten (10) days depending upon how much water is used.

After all the chlorine has been pumped out of the well, submit a water sample in a sterile container to an approved laboratory for bacterial analysis. The well shall not be used for human consumption until a satisfactory test has been obtained.

3.6.7 ADDITIONAL REFERENCE

Reference is made to the bulletin entitled "Rural Water Supply" published by the New York State Department of Health.

3.7 SANITARY SEWER SYSTEM IMPROVEMENTS

3.7.1 GENERAL

Sanitary sewer system piping and appurtenances shall comply with the Standard Specifications of the Wayne County Water and Sewer Authority

3.8 INDIVIDUAL ON-SITE SEWAGE DISPOSAL SYSTEMS

3.8.1 GENERAL

Individual on-site sewage disposal systems shall not be allowed if any of the following conditions exist:

1) The site is within an existing Sewer District.

2) Proposed site is in area with soils classified by United States Soil Conservation Service as muck.

3) Proposed site is within one hundred feet (100') of the boundary of a State or Federal Wetlands area.

4) Elevation of the inverts of the leach field is less than two feet (2') above a one hundred (100) year floodplain elevation, where regulations of the Health Department cannot be complied with.

3.8.2 DESIGN

Individual on-site sewage disposal systems shall be designed and installed in conformance with Appendix 75-A ("Wastewater Treatment Standards - Individual Household Systems") of Part 75 of the Administrative Rules and Regulations contained in Chapter 11 of Title 10 (Health) of the Official Compilation of Codes, Rules and Regulations of the State of New York and as noted herein:

1) Percolation and deep hole tests must be scheduled through and witnessed by the Building Department of Walworth. The Town of Walworth shall require four (4) percolation holes and two (2) deep holes per lot.

2) All housing units shall be designed with a minimum of three bedrooms.

3) The minimum length of leach line shall be 250 L.F..

4) Installation of individual subsurface disposal systems must be certified to the Town of Walworth by a licensed professional as compared to the approved plans before a Certificate of Occupancy will be issued.

5) The Town Building Department must observe the subsurface disposal system when it is installed for compliance to the approved plans.

6) Any installed system must be completely backfilled and graded within twenty-four (24) hours of inspection and acceptability by the Design Engineer.

7) No subsurface disposal system will be installed under adverse weather conditions.

8) There will be no driving or parking over the area of the subsurface disposal system.

9) The area of the leach field system will be final graded and seeded as soon as possible after construction.

3.8.3 NATIVE SOILS

Only absorption fields utilizing at least twelve inches (12”) of native soil shall be allowed in the Town of Walworth. Those native soils must have percolation rates less than sixty (60) minutes with design based on the actual percolation rate for the native soils.

3.8.4 VARIANCE

If applicant's Engineer believes marginal soil condition could be mitigated by on-site drainage systems, applicant may design and install drainage systems to demonstrate their performance for a one (1) year period after which time applicant's Engineer may design an SDS system for conditions prevailing at that time for review by Town.

3.9 SEWER INFRASTRUCTURE

3.9.1 APPROVAL; COST OF ON-PREMSISES FACILITIES; INSTALLATION; INSPECTION

When a Property Owner, Builder or Developer proposes to construct sanitary sewers or extensions to sanitary sewers in an area proposed for development, the plans, specifications and method of installation shall be subject to the approval of the Town Planning Board.

Said property owner, builder or Developer shall pay the cost of installation of on-premises facilities; such as intercepting or trunk sewers, pumping stations and force mains.

Each street lateral shall be installed and inspected pursuant to Article VII and inspection fees shall be paid by the applicant prior to initiating construction. Design and installation of sewers shall be as specified in these design guidelines and in conformance with Paragraphs 3 through 6 of ASTM Specification C-12.

The installation of the sewer shall be subject to periodic inspection by the Superintendent, without prior notice. The Superintendent shall determine whether the work is proceeding in accordance with the approved plans and specifications, and whether the completed work will conform to the approved plans and specifications.

The sewer, as constructed, must pass the infiltration test (or the exfiltration test, with prior approval), according to the Design Standards as required by Chapter151, Subdivision, Site Plan Review, before any building lateral is connected thereto. The Superintendent shall be notified thirty (30) days in advance of the start of any construction actions so that such inspection frequencies and procedures, as may be necessary or required, may be established. The Town Board will not accept new sanitary sewers until such construction inspections have been made so as to assure the Town Board of compliance with this Section 3 and any amendments or additions thereto.

The Superintendent has the authority to require such excavation as necessary to inspect any installed facilities if the facilities were covered or otherwise backfilled before they were inspected so as to permit inspection of the construction. The Superintendent shall report all findings of inspections and tests to the Town Board.

3.9.2 PLANS, SPECIFICATIONS AND METHODS OF INSTALLATION CONFORM TO REQUIREMENTS

Plans, specifications and methods of installation shall conform to the requirements of this Article. Components and materials of wastewater facilities not covered in this Section 3, such as pumping stations, lift stations or force mains, shall be designed in accordance with these design guidelines and shall be clearly shown and detailed on the plans and specifications submitted for approval. Additional force main details are covered in these design guidelines.

When requested, the applicant shall submit to the Superintendent and to the Town Planning Board, all design calculations and other pertinent data to supplement review of the plans and specifications. Results of manufacturer's tests on each lot of pipe delivered to the job site shall also be furnished, upon request.

3.9.3 SEWER PIPE MATERIALS AND SIZE

Sewer pipe material shall be:

1) Reinforced concrete pipe (Note that nonreinforced concrete pipe shall not be used).

    a) The pipe and specials shall conform to ASTM Specification C 76.

    b) The reinforcing wire cage shall conform to ASTM Specification A 15, A 82 or A 185, as appropriate.

    c) Water absorption and three-edge bearing tests shall conform to ASTM Specification C 497.

    d) Gaskets shall conform to Sections 3.3 and 3.4 of AWWA Specification C 302.

2) Cast-iron pipe, extra-heavy

    a) Pipe, fittings and specials shall conform to the requirements of STMA Specification A 74 or ANSI A 21.11.

    b) Gaskets shall conform to ASTM Specification C 564.

3) Polyvinyl chloride (PVC) pipe, heavy wall

    a) Pipe shall be made from Class 12454-B materials or better, in accordance with ANSI/ASTM Specification D 1984.

    b) Pipe and accessories shall conform to the requirements of the following, with a minimum pipe stiffness of forty-six (46) pounds per square inch at a maximum deflection of five percent (5%).
        i. ANSI/ASTM D 3034 four inches (4”) to fifteen inches (15”).
        ii. ASTM f 679 eighteen inches (18”) to twenty-seven inches (27”).

4) Ductile iron pipe

   a) Pipe, fittings and specials shall be manufactured in accordance with ASTM Specification A 746. Pipe shall have a minimum thickness of Class 50.

   b) Fittings shall conform to ANSI Specification A 21.11 and have a minimum pressure class rating of 150 pounds per square inch.

   c) All pipe and fittings shall be cement mortar lined in accordance with ANSI Specifications A 21.4 at twice the specified thickness and have an internal and external bituminous seal coating.

   d) Closure pieces shall be jointed by means of a mechanical coupling of the cast-sleeve type.

5) Acrylonitrile-butadiene-styrene (ABS) pipe. Pipe and fittings shall conform to the requirements of ASTM Specification D 2661.

6) Other pipe materials. Other pipe materials require prior written approval of the Superintendent before being installed.

The minimum internal pipe diameter shall be eight inches (8”).

Joints for the selected pipe shall be designed and manufactured such that O-ring gaskets of the snap-on type are used. Gaskets shall be continuous, solid, natural or synthetic rubber and shall provide a positive compression seal in the assembled joint, such that the requirements of these design guidelines are met.

Joint preparation and assembly shall be in accordance with the manufacturer's recommendations.

Y-branch fittings shall be installed, for connection of street laterals, in accordance with these design guidelines.

3.9.4 SAFETY AND LOAD FACTORS

Selection of pipe class shall be predicated on the following criteria:

1) Safety factor: 1.5

2) Load factor: 1.7

3) Weight of soil: 120 pounds per cubic foot

4) Wheel loading: 16,000 pounds

Utilizing the foregoing information, design shall be made as outlined in Chapter IX of the Water Pollution Control Federation Manual of Practice No. 9, latest edition, and Design and Construction of Sanitary and Storm Sewers. The pipe shall have sufficient structural strength to support all loads to be placed on the pipe with a safety factor as specified above.

3.9.5 SEWER PIPE INSTALLATION

Local utilities shall be contacted to verify construction plans and to make arrangements to disconnect all utility services where required to undertake the construction work. The utility services shall later be reconnected. The work shall be scheduled so that there is minimum inconvenience to local residents. Residents shall be provided proper and timely notice regarding disconnection of utility.

The construction right-of-way shall be cleared only to the extent needed for construction. Clearing consists of removal of trees which interfere with construction, removal of underbrush, logs and stumps and other organic matter, removal of refuse, garbage and trash, removal of ice and snow and removal of telephone and power poles and posts. Any tree that will not hinder construction shall not be removed and shall be protected from damage by any construction equipment. Debris shall not be burned, but hauled for disposal in an approved manner.

The public shall be protected from personal and property damage as a result of the construction work.

Traffic shall be maintained at all times in accordance with applicable highway permits. Where no highway permits are required, at least one-half of a street shall be kept open for traffic flow with approved traffic control.

Erosion control shall be performed throughout the project to minimize the erosion of soils onto lands or into waters adjacent to or affected by the work. Erosion control can be affected by limiting the amount of clearing and grubbing prior to trenching, proper scheduling of the pipe installation work, minimizing time of open trench, prompt grading and seeding and filtration of drainage.

The trench shall be excavated only wide enough for proper installation of the sewer pipe, manhole and appurtenances. Allowances may be made for sheeting, dewatering and other similar actions to complete the work. Roads, sidewalks and curbs shall be cut by sawing before trench excavation is initiated.

Under ordinary conditions, excavations shall be by open cut from the ground surface. However, tunneling or boring under structures other than buildings may be permitted. Such structures include crosswalks, curbs, gutters, pavements, trees and driveways.

Open trenches shall be protected at all hours of the day with barricades, as required.

Trenches shall not be open for more than thirty feet (30') in advance of pipe installation nor left unfilled for more than thirty feet (30') in the rear of the installed pipe, when the work is in progress, without permission of the Superintendent. When work is not in progress, including overnight, weekends and holidays, the trench shall be backfilled to ground surface.

The trench shall be excavated approximately six inches (6") deeper than the final pipe grade. When unsuitable soils are encountered, they shall be excavated and replaced with select materials.

Ledge rock, boulders and large stones shall be removed from the trench sides and bottom. The trench shall be over-excavated at least twelve inches (12") for five feet (5') at the transition from rock bottom to earth bottom, centered on the transition.

Maintenance of grade, elevation and alignment shall be done by some suitable method or combination of methods.

No structure shall be undercut unless specifically approved by the Superintendent.

Proper devices shall be provided and maintained operational at all times to remove all water from the trench as it enters. At no time shall the sewer line be used for removal of water from the trench.

To protect workers and to prevent caving, shoring and sheeting shall be used as needed. Caving shall not be used to backfill the trench. Sheeting shall not be removed, but cut off no lower than one foot (1') above the pipe crown or no higher than one foot (1') below final grade, and left in the trench during backfill operations.

The pipe barrel shall be supported, along its entire length, on a minimum of six inches (6") of crusher-run maximum one-half-inch (1/2") stone. This foundation shall be firmly tamped in the excavation.

Bell holes shall be hand excavated, as appropriate.

Pipe shall be laid from low elevation to high elevation. The pipe bell shall be up gradient and the pipe spigot shall be down gradient.

The joints shall be made and the grade and alignment checked and made correct.

Crushed stone shall be placed over the laid pipe to a depth of at least six inches (6"). Care shall be exercised so that stone is packed under the pipe hunches and that the pipe is not moved during placement of the crushed stone.

The pipe shall be in straight alignment.

The remaining portion of the trench above the embedment shall be backfilled in one-foot (1') lifts that shall be firmly compacted. Compaction near/under roadways, driveways, sidewalks and other structures shall be to ninety-five percent (95%) of the maximum moisture-density relationship, as determined by ASTM Specification D 698, Method D. Ice, snow or frozen material shall not be used for backfill.

3.9.6 MANHOLE INSTALLATION

Manholes shall be placed where there is a change in slope or alignment and at intervals not exceeding 400 linear feet.

Manhole bases shall be constructed of three-thousand-pounds-per-square-inch (seven-day) concrete twelve inches (12”) thick or shall be precast bases properly bedded in the excavation. Field-constructed bases shall be properly reinforced.

Manhole walls shall be constructed using precast minimum four-foot-diameter concrete manhole barrel sections and an eccentric top section, conforming to ASTM Specifications C-478. All sections shall be cast solid, without lifting holes.

All joints between sections shall be sealed with an O-ring rubber gasket, meeting the same specifications as pipe joint gaskets. All joints shall be sealed against infiltration.

No steps or ladder rungs shall be in the manhole walls.

All precast sections shall be produced at a plant that is approved by the New York State Department of Transportation for manufacture of concrete pipe.

The elevation of the top section shall be such that the cover frame top elevation is 0.5 foot above the one-hundred-year flood elevation (in a field), 0.5 foot above a lawn elevation or at finished road or sidewalk grade.

When located in a traveled area (road or sidewalk), the manhole frame and cover shall be heavy-duty cast iron. When located in a lawn or in a field, the manhole frame and cover may be light-duty cast iron. The cover shall be thirty-six inches (36”) in diameter. The minimum combined weight of the heavy-duty frame and the cover shall be 735, plus or minus 5%, pounds. The minimum combined weight of the light-duty frame and the cover shall be 420, plus or minus 5%, pounds. The mating surfaces shall be machined and painted with tar pitch varnish. The cover shall not rock in the frame. Infiltration between the cover and frame shall be prevented by proper design and painting. Covers shall have "Sanitary Sewer" cast into them. Covers shall have lifting holes suitable for any lifting/jacking device. The lifting holes shall be designed so that infiltration is prevented.

Benches shall be level and slope to the flow channel at about one inch per foot.

The minimum depth of the flow channel shall be the nominal diameter of the smaller pipe. The channel shall have a steel trowel finish. The flow channel shall have a smooth curvature from inlet to outlet.

Manhole frames shall be set in a full bed of mortar with no less than two (2) nor more than nine (9) courses of brick underneath to allow for later elevation adjustment.

3.9.7 INFILTRATION/EXFILTRATION TESTING; DEFLECTION TESTING; AIR TESTING

Infiltration/Exfiltration Testing

1) All sanitary sewers or extensions to sanitary sewers, including manholes, shall satisfy requirements of a final infiltration test before they will be approved and wastewater flow permitted by the Town. The infiltration rate shall not exceed twenty-five (25) gallons per twenty-four (24) hours per mile per nominal diameter in inches. An exfiltration test may be substituted for the infiltration test; the same rate shall not be exceeded.

   The exfiltration test shall be performed by the applicant, under the supervision of the Superintendent, who shall have the responsibility for making proper and accurate measurements required. The exfiltration test consists of filling the pipe with water to provide a head of at least five feet (5') above the top of the pipe or five feet (5') above groundwater, whichever is higher, at the highest point under test, and then measuring the loss of water, from the pipe section under test, by the amount of water which must be added to maintain the original level. In this test, the test section must remain filled with water for at least twenty-four (24) hours prior to taking any measurements. Exfiltration shall be measured by the drop of water level in a standpipe with a closed bottom end or in one of the sewer manholes serving the test section. When a standpipe and plug arrangement is used in the upper manhole in the test section, there shall be some positive method for releasing entrapped air prior to taking any measurements.

2) Test section. The test section shall be as ordered or as approved but in no event longer than 1,000 feet. In the case of sewers laid on steep grades, the test length may be limited by the maximum allowable internal pressure on the pipe and joints at the lower end of the test section. For purposes of determining the leakage rate of the test section, manholes shall be considered as sections of forty-eight-inch-diameter pipe, five feet long. The maximum allowable leakage rate for such a section is 1.1 gallons per twenty-four (24) hours. If leakage exceeds the allowable rate, then necessary repairs or replacements shall be made, and the section retested.

3) Test period. The test period, during which the test measurements are taken, shall not be less than two (2) hours.

4) Pipe lamping. Prior to testing, the section shall be lamped. Any joint out of straight alignment shall be realigned.

5) Deflection testing. Also prior to testing, all plastic pipe in the test section shall be tested for deflection. Deflection testing shall involve the pulling of a ball, whose diameter is ninety-five percent (95%) of the pipe inside diameter, through the pipe. Any joint with a deflection greater than five percent (5%) shall be replaced. The test section shall be flushed just prior to deflection testing.

Air testing alternative.

1) In lieu of hydrostatic testing (exfiltration or infiltration), air testing may be employed. Low-pressure air tests shall conform to ASTM Specification C 828. All sections to be tested shall be cleaned and flushed and shall have been backfilled prior to testing. The air test shall be based on the time, measured in seconds, for the air pressure to drop from 3.5 pounds per square inch to 2.5 pounds per square inch. Acceptance is based on limits stated in ASTM Specification C 828. Before pressure is applied to the line, all connections shall be firmly plugged. Before the test period starts, the air shall be given sufficient time to cool to ambient temperature in the test section.

3.9.8 FORCE MAINS

Force mains serving sewage lifting devices, such as grinder pumps and pump stations, shall be designed in accordance with this design guideline. Additional design requirements are:

- Trenching, bedding and backfilling shall be in accordance with these design guidelines.
- Drain valves shall be placed at low points.
- Automatic air relief valves shall be placed at high points and at four-hundred-foot (400') intervals, on level force main runs.
- Air relief and drain valves shall be suitably protected from freezing.

When the daily average design detention time in the force main exceeds twenty (20) minutes, the manhole and sewer line receiving the force main discharge or the sewage shall be treated so that corrosion of the manhole and the exiting line are prevented. The corrosion is caused by sulfuric acid biochemically produced from hydrogen sulfide anaerobically produced in the force main.

3.9.9 SEWER LATERAL PERMITS

There shall be two classes of sewer lateral permits:

1) For residential, commercial and institutional service.
2) For service to establishments producing industrial wastes.

In either case, a permit application shall be submitted to the Superintendent. The permit application shall be supplemented by any plans, specifications or other information considered pertinent in the judgment of the Superintendent. A fee, established by § 139 - 127, shall accompany the application.

3.9.10 EACH BUILDING TO HAVE SEPARATE BUILDING LATERALS

A separate and independent building lateral shall be provided for every building requiring sanitary facilities. When, however, there is a building behind a front building, the second building may use the front building's building lateral, if there is no other way to provide sanitary service to the back building.

New street laterals and/or building laterals shall not go under building basements. In like fashion, a building shall not be constructed over an existing lateral; the lateral shall be relocated after the Superintendent has approved plans showing the relocation. If relocation is not physically possible, then the lateral shall be exposed and totally encapsulated in not less than three inches (3") of concrete or exposed and walled and the building rooms above positively ventilated outdoors. All existing manholes in or under the basement shall be sealed airtight in a manner acceptable to the Superintendent. No new manholes shall be constructed on the portion of the lateral under the building.

3.9.11 LATERALS SERVICING SERVERAL BUILDINGS

When building laterals are to serve multiple dwelling structures, the building lateral shall be sized in accordance with the metered water use and with sound professional engineering judgment.

3.9.12 LATERALS SERVICING COMPLEXES

Where a lateral sewer is to serve a complex of industrial, commercial, institutional or dwelling structures, special design of the building lateral system shall be required. Plans and specifications shall be prepared and submitted for approval.

3.9.13 DRY SEWERS

Dry sewers shall be designated and installed in accordance with these criteria.

3.9.14 USE OF EXISTING LATERALS

Existing building laterals may be used in connection with new buildings only when they are found on examination by the Superintendent to meet all requirements of these design criteria.

3.9.15 LATERAL PIPE MATERIALS

Building and street lateral pipe materials shall be one of the following:

1) Tar-coated, service grade, cast-iron soil pipe conforming to ASTM Specification A-74, Cast Iron Pipe and Fittings. All dimensions, weight and markings of the pipe shall conform to the requirements of ANSI, Designation A112.5.1, except spigot ends shall be plan end if gasket joints are used.

2) Polyvinyl chloride (PVC) pipe and fittings conforming to ASTM Specification D-3034-73, SDR-35 Polyvinyl Chloride (PVC) Sewer Pipe and Fittings. All pipe shall be suitable for gravity sewer service. Provisions shall be made for contraction and expansion at each joint with a rubber ring. The bell shall consist of an integral wall section stiffened with two PVC retainer rings that securely lock the solid cross-section ring into position. Minimum pipe stiffness (F/Y) at five percent (5%) deflection shall be forty-six (46) pounds per square inch when tested in accordance with ASTM Specification D-2412.

Any part of the building or street lateral that is located within five feet (5') of a water main or water service shall be constructed of cast-iron soil pipe. Cast-iron soil pipe may be required by the Superintendent where the building or street lateral is likely to be damaged by tree roots. If installed on fill or unstable ground, the building or street lateral shall be of cast-iron soil pipe, although other pipe material may be permitted if such pipe is uniformly supported on a poured concrete cradle approved by the Superintendent. The distance between consecutive joints, as measured along the centerline of the installed pipe, shall not be less than ten feet (10'), except under abnormal circumstances, in which case this dimension may be diminished, if approved by the Superintendent. The size and slope of building and street laterals shall be subject to approval by the Superintendent, but in no event shall the internal pipe diameter be less than four inches (4") nor shall the pipe slope be less than one-fourth inch per foot.

3.9.16 CONNECTION OF STREET LATERAL TO MAIN SEWER

At the point of connection of a street lateral to a main sewer, a standard Y-fitting and sufficient one-eighth (1/8) 45° bend fittings shall be used. The Y-fittings shall be installed so that flow in the arm shall transition smoothly into the flow in the public sewer. No lateral connection shall be made to the public sewer, which permits the flow into the public sewer from the lateral to enter at right angles.

3.9.17 LATERALS FOR FUTURE USE; AS-BUILT DRAWINGS

The street lateral, including the Y- and one-eighth bend fittings, shall be connected to the main sewer at the time of constructing the main sewer, for each proposed lot for either immediate or future development. Laterals installed for future development shall be fitted a standard plug approved for use by the Superintendent. All sewer connections shall be via a properly installed saddle on the main sewer pipe. No portion of the lateral pipe shall protrude into the main sewer pipe. The location of all lateral connections shall be field marked with a two-by-six-inch corrosion and rot-resistant board. The marker board shall extend from the depth of the lateral to a minimum of two feet (2') above grade. The location of all lateral connections shall be indicated on a drawing; four (4) copies of this drawing, showing the as-built location of these connections, shall be furnished to the Superintendent. No sanitary sewer shall be accepted by the Town until four (4) copies of this record drawing have been so filed with the Superintendent and the Superintendent has approved the submitted drawings.

3.9.18 SPECIAL MANHOLE REQUIREMENTS

When any street lateral is to serve a school, hospital or similar institution, public housing or is to serve a complex of industrial or commercial buildings or which, in the opinion of the Superintendent, will receive wastewater or industrial wastes of such volume or character that frequent maintenance of said building or street lateral is anticipated, then such street lateral shall be connected to the public sewer through a manhole. The Superintendent shall determine if and where this type of connection to the public sewer is required. Connections to existing manholes shall be made as directed by the Superintendent. If required, a new manhole shall be installed in the public sewer in accordance with these design criteria and the lateral connection made thereto as directed by the Superintendent.

3.9.19 LATERALS AT OR NEAR BUILDINGS

Whenever possible, the building lateral shall be brought to the building at an elevation below the basement floor. Building laterals laid parallel to a bearing wall shall not be installed closer than three feet (3') to such wall. The building lateral shall be laid at uniform grade and in straight alignment insofar as possible. Changes in direction shall be made only with properly curved pipe and fittings. Changes of direction of 90° or greater shall be made with a cleanout which extends to grade, terminating in a terminal box set in concrete. The ends of all building or street laterals, which are not connected to the interior plumbing or the building, for any reason, shall be sealed against infiltration by a suitable stopper, plug or by other approved means.

3.9.20 LIFTING OF WASTEWATER

In all buildings in which any building drain is too low to permit gravity flow to the public sewer, wastewater carried by such drain shall be lifted by mechanical means and discharged to the building lateral on approval of the Superintendent.

3.9.21 INSTALLATION OF LATERAL PIPE

All excavations required for the installation of a building or street lateral shall be open trench work unless otherwise approved by the Superintendent. Pipe laying and backfilling, regardless of pipe material used, shall be performed in general accordance with Paragraphs 3 through 6 of the ASTM Specification C-12, except that trench width, measured at the top of the installed pipe, shall not exceed the outside pipe diameter, plus fourteen inches, and except that no backfill shall be placed until the work has been inspected. The depth of cover over the pipe shall be sufficient to afford protection from frost, but in no case shall such depth be less than four feet.

3.9.22 JOINTS

Watertight joints

All joints and connections shall be made watertight.

Cast-iron pipe poured joints

Poured joints for cast-iron pipe shall be firmly packed with oakum or hemp and the annulus filled with an approved compound not less than one inch (1”) deep. Said compound shall be run in with a single pouring and caulked tight, if appropriate for the compound used. No paint, varnish or other coatings shall be permitted on the jointing material until after the joint has been tested and approved. The transition joint between cast-iron pipe and other pipe materials shall be made with special adapters and jointing materials approved by the Superintendent. If such joints are hot-poured, the material shall not soften sufficiently to destroy the effectiveness of the joint when subjected to a temperature of 160° F nor be soluble in any of the wastes carried by the lateral.

Cast-iron push joints

Premolded gaskets may be used for hub and plan end cast-iron pipe joints and joints with fittings, if approved by the Superintendent. The gasket shall be a neoprene compression-type unit that provides a positive seal in the assembled joint. The gasket shall be a premolded, one-piece unit, designed for joining the cast-iron hub and plan end soil pipe and fittings. The assembled joint shall be sealed by compression of the gasket between the exterior surface of the spigot and the interior surface of the hub. The joint shall be assembled following the manufacturer's recommendations using acceptable lubricant and special pipe-coupling tools designed for that purpose. The plan spigot end shall be forced into the hub end of the pipe for the full depth of the hub itself. Lubricant shall be a bland, flax-base, nontoxic material and shall not chemically attack the gasket material.

PVC push joints

Joints for PVC sewer pipe shall follow the manufacturer's recommendations, using properly designed couplings and rubber gaskets pursuant to the published information relating thereto and conforming to the applicable ASTM specification identified in this design criteria.

3.9.23 BUILDING LATERAL AND SEWER LATERAL CONNECTION

The connection of the building lateral to an existing street lateral shall be made at the property line. Except as provided in this design criteria, if a street lateral has not previously been provided, the street lateral will be constructed from the existing public sewer to the property line by a licensed plumber. The street lateral shall be installed with a properly sealed and covered cleanout to grade located at the property line. The cleanout shall terminate in a metal box embedded in concrete.

The cost of constructing the street lateral from the existing public sewer to the property line shall be at the Owner's expense; all subsequent costs and expenses incidental to the installation and connection of the building lateral shall also be borne by the Owner. The Owner shall indemnify the Town from any loss or damage that may directly or indirectly be occasioned by the installation of the building lateral. It shall be the responsibility of the property Owner to maintain, repair or replace the building lateral as needed.

The method of connection of the building lateral to the street lateral will be dependent upon the type of sewer pipe material and, in all cases, shall be approved by the Superintendent. After the installation of the street lateral has been approved by the Superintendent, the new street lateral shall become the property of the Town. Any subsequent repairs to the new street laterals shall be made by the Town at the Town's expense.

Cleanout repair/replacement. If, in the judgment of the Superintendent, it is determined that a building lateral, without a property line cleanout, needs repair or replacement, the Town may install a cleanout at the property line, at the Owner's expense, such that the street lateral can be maintained independently of the building lateral.

3.9.24 STREET LATERAL REPLACEMENT

Any existing street lateral, upon examination by the Superintendent is determined to be in need of replacement, will be replaced with a new street lateral with a property line cleanout. The replacement street lateral shall be constructed by a licensed plumber. The cost of constructing the replacement street lateral and cleanout shall be at the property Owner's expense. Once the replacement street lateral and cleanout have been constructed and approved by the Superintendent, the new street lateral shall become the property of the town. Any repairs to new street laterals shall be made by the Town at the town's expense.

3.9.25 TESTING

The street lateral, building lateral or the combined lateral shall be tested for infiltration/exfiltration by any full pipe method described in these design criteria or by a suitable joint method with the prior written approval of the Superintendent.

3.9.26 INSPECTION AND SUPERVISION OF CONNECTION

The applicant for the building lateral permit shall notify the Superintendent when the building lateral is ready for inspection and connection to the street lateral is to be made. The connection shall be made under the supervision of the Superintendent.

When street laterals are installed, the Property Owner, Builder or Developer shall notify the Superintendent when the street lateral is ready for inspection and connection to the main sewer, and such connection shall be made under the supervision of the Superintendent.

3.9.27 TRENCH INSPECTION

When trenches are excavated for the laying of building lateral pipes or for laying of street lateral pipes, such trenches shall be inspected by the Superintendent. Before the trenches are backfilled, the person performing such work shall notify the Superintendent when the laying of the building lateral is completed; no backfilling of trenches shall begin until approval is obtained from the Superintendent.

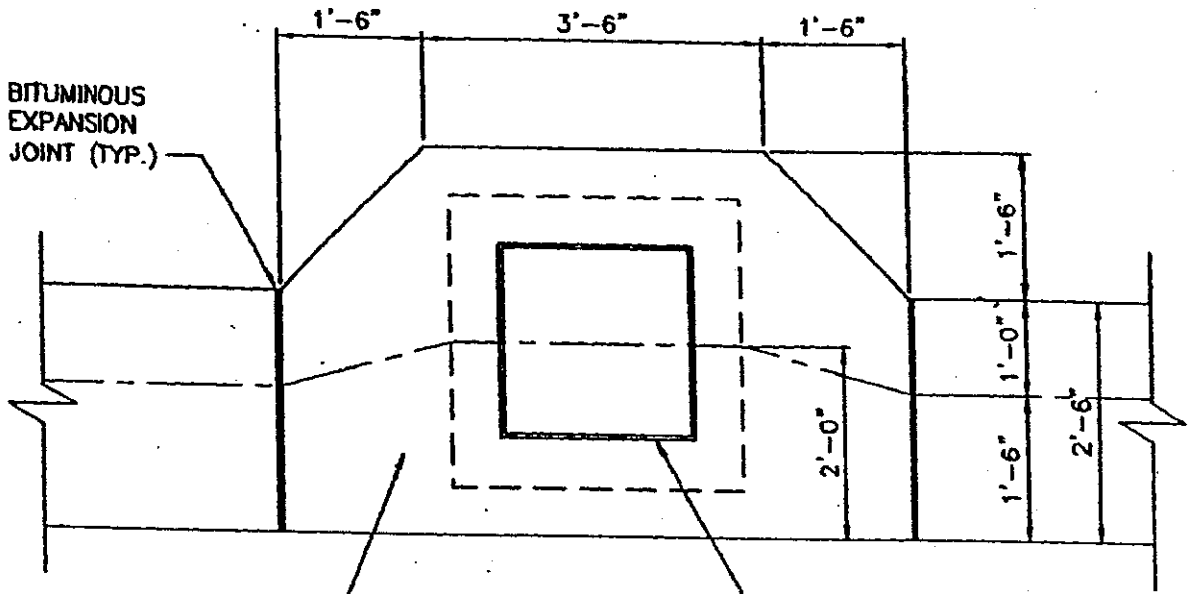
3.9.28 PROTECTION OF EXCAVATIONS; RESTORATION

All excavations for constructing building laterals shall be adequately protected with barricades and lights so as to protect the public from hazard. Streets, sidewalks, parkways and other public property disturbed in the course of the work shall be restored in a manner satisfactory to the Superintendent. When installation requires disturbance of paved public roads and shoulders, restoration shall involve backfilling to road grade. Shortly thereafter, the Town Highway Department shall complete road and shoulder restoration to the Town's standards. The cost for such final road and shoulder restoration by the Town Highway Department shall be included with the fees paid with the application for the permit required.

3.9.29 INTERIOR CLEANOUT

An interior cleanout fitting shall be provided for each building lateral at a readily location, preferably just inside the basement wall. The fitting shall contain a forty-five-degree (45°) branch with removal plug or test tee and be so positioned that sewer cleaning equipment can be inserted therein to clean the building lateral. The cleanout diameter shall be no less than the building lateral diameter.

Section 4
Construction Details

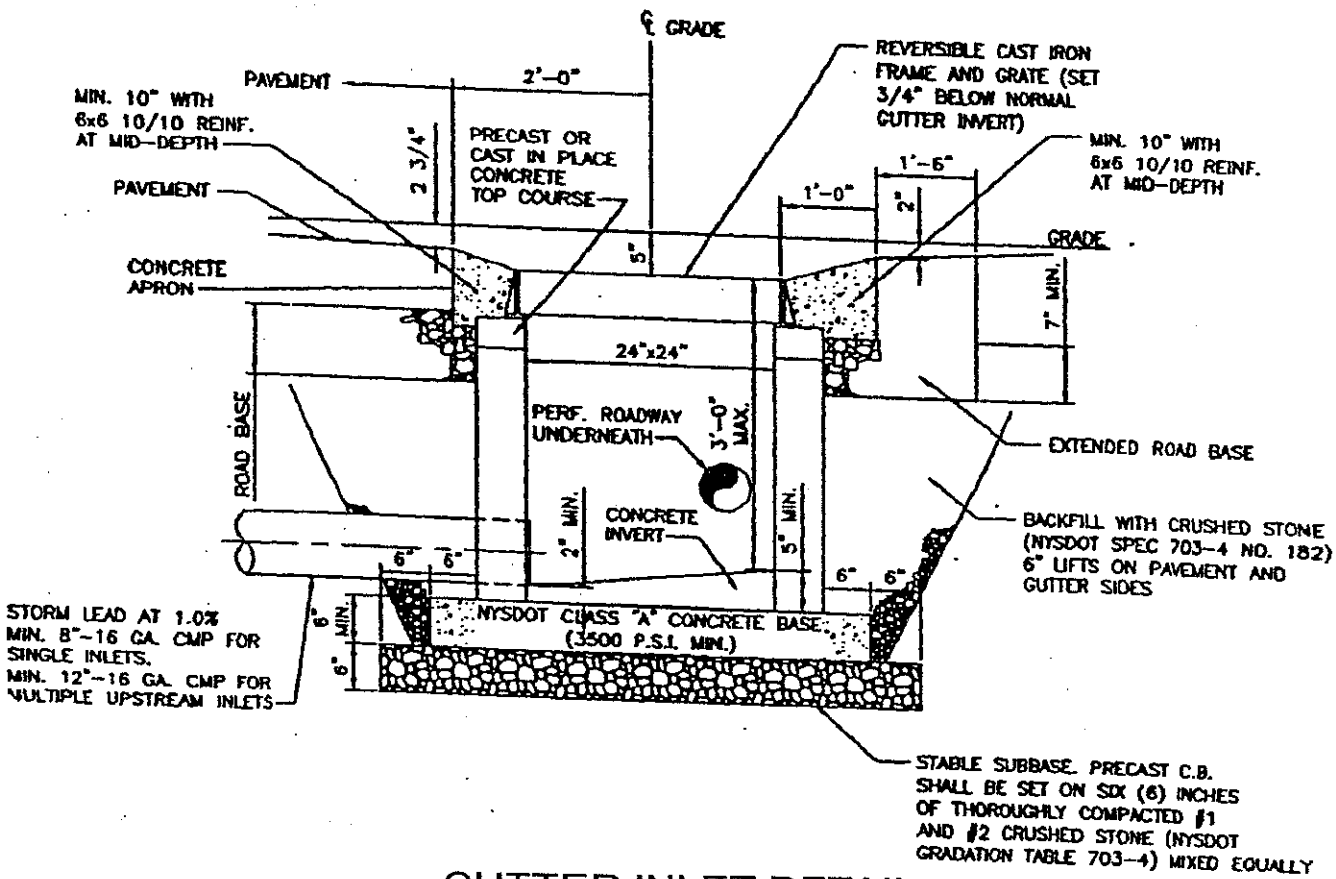


NOTE: GUTTER INLETS SHALL NOT BE PLACED IN DRIVE AREAS.

GUTTER INLET DETAIL

PLAN VIEW

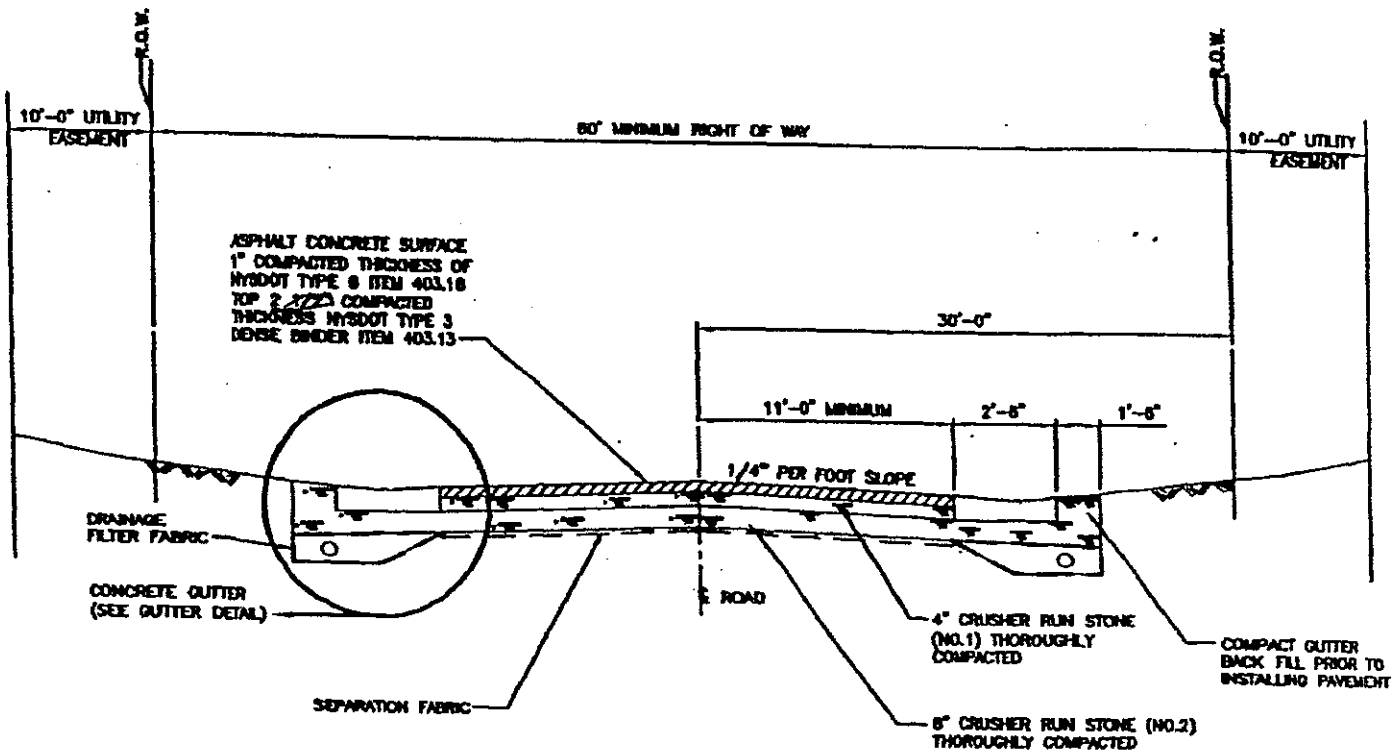
LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.1



GUTTER INLET DETAIL

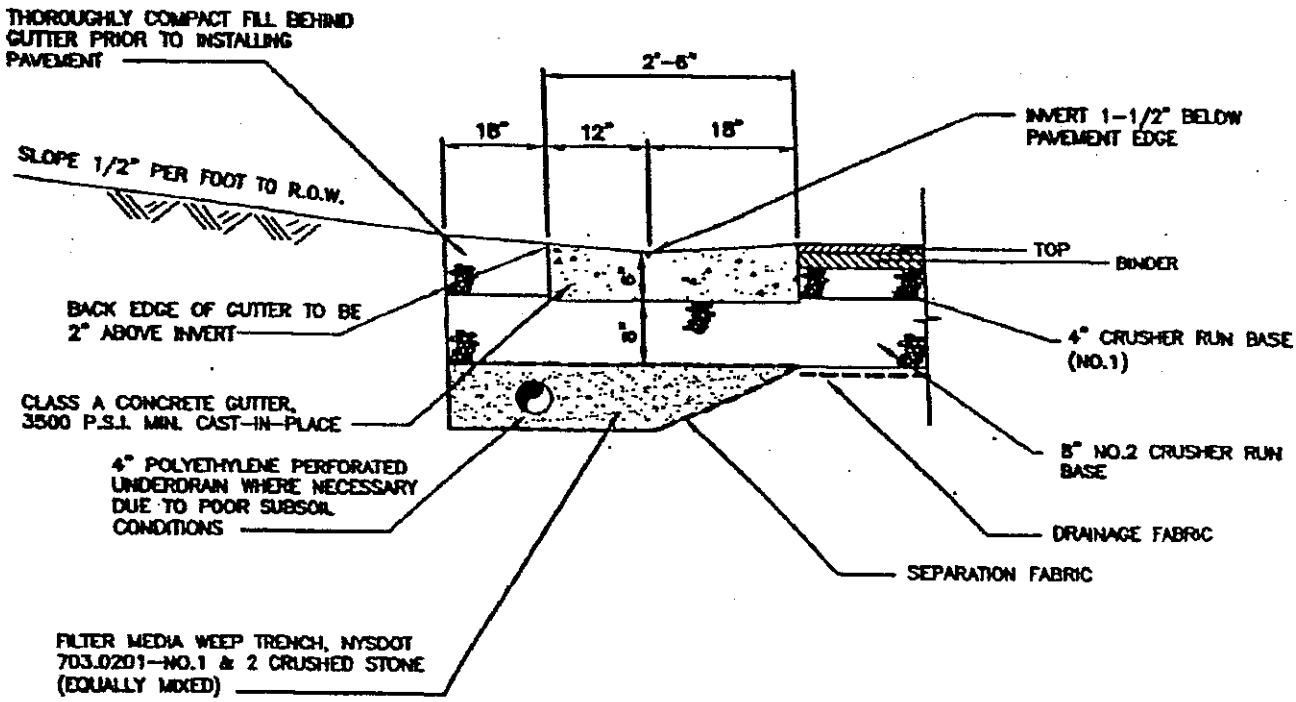
SECTION VIEW

LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.2



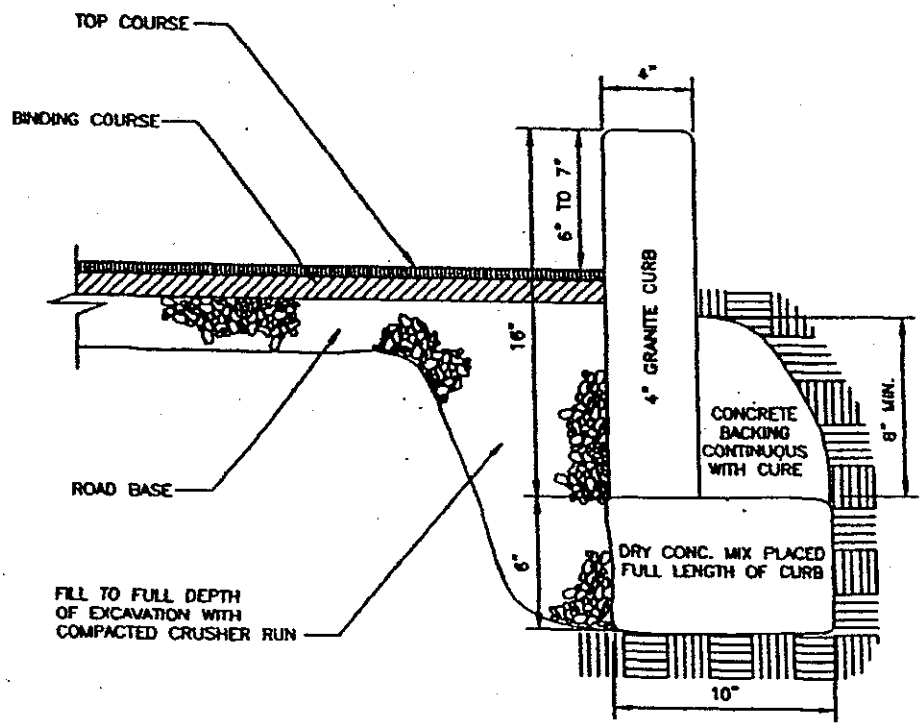
SUBDIVISION ROAD DETAIL

LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.3



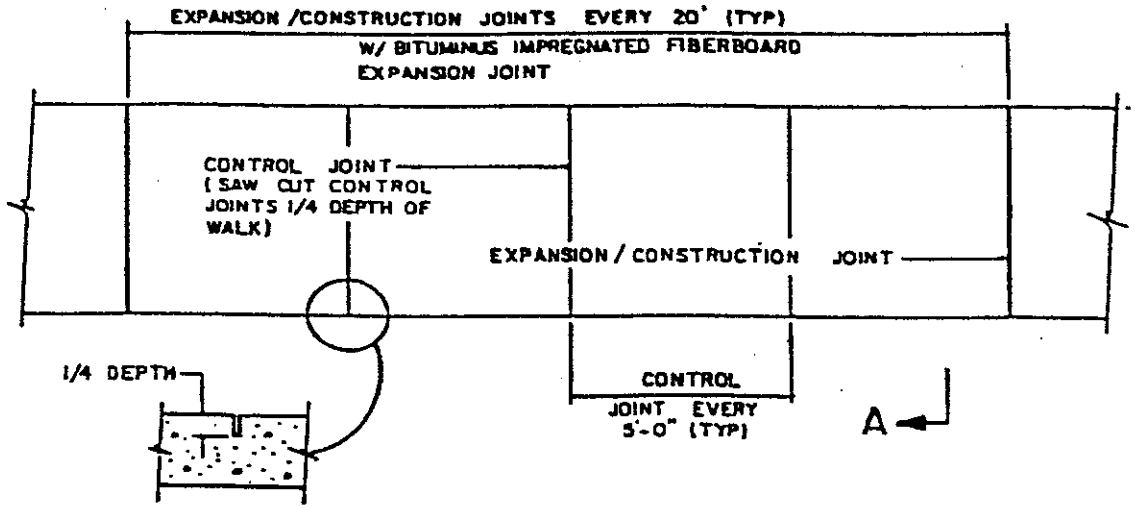
GUTTER DETAIL

LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.4



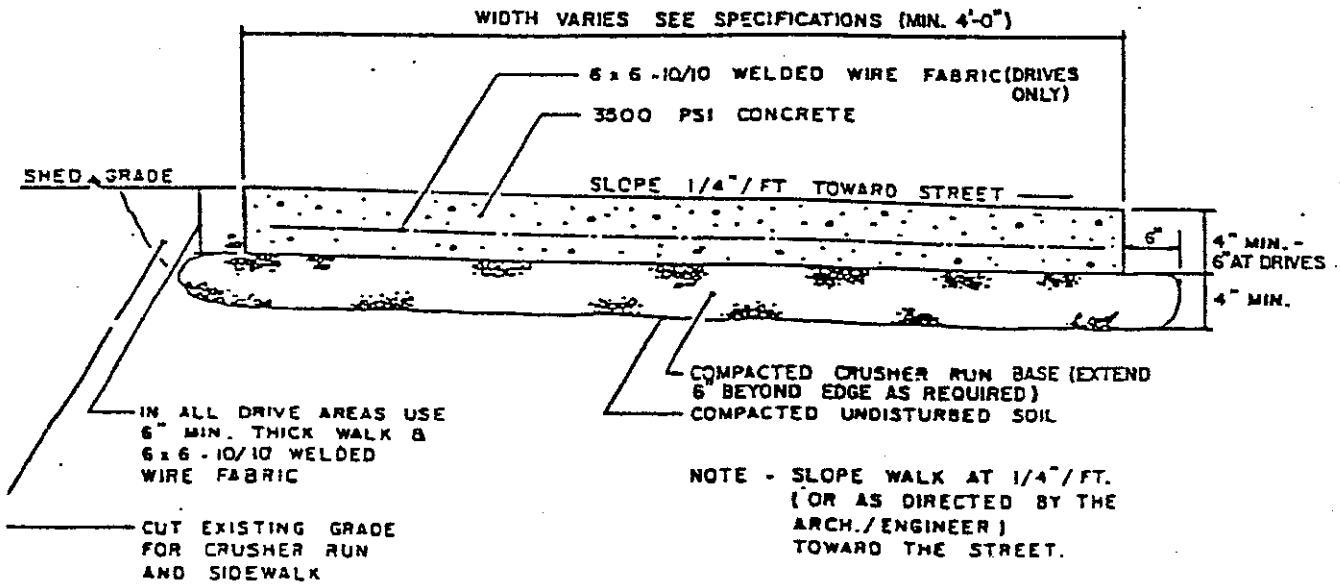
GRANITE CURB DETAIL

LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.5



CONSTRUCTION JOINT DETAIL

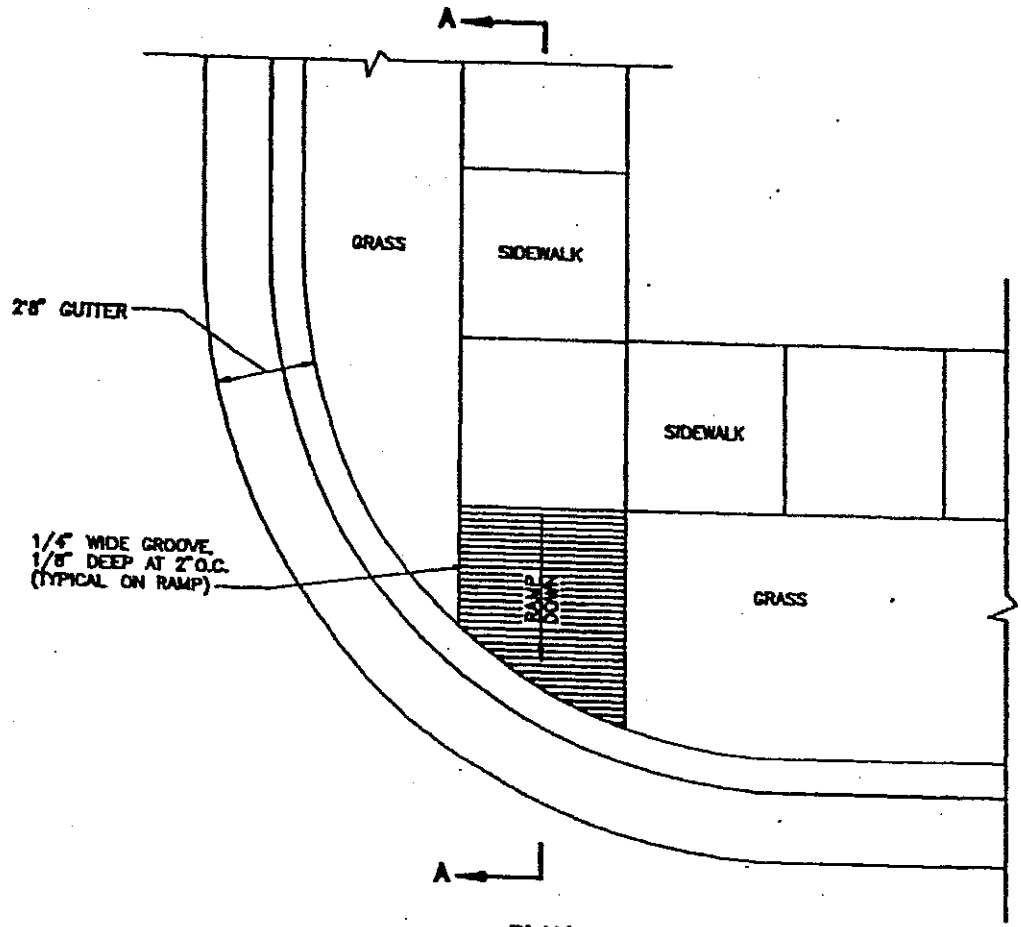
PLAN VIEW



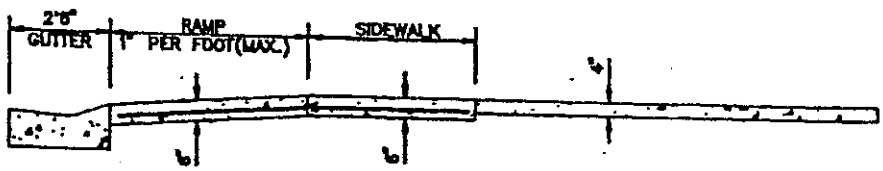
SECTION A-A

CONCRETE SIDEWALK DETAIL

LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.6



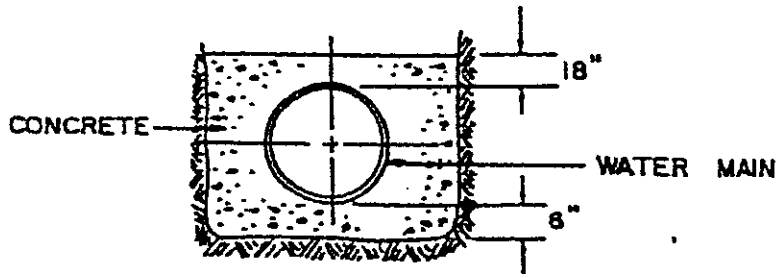
PLAN



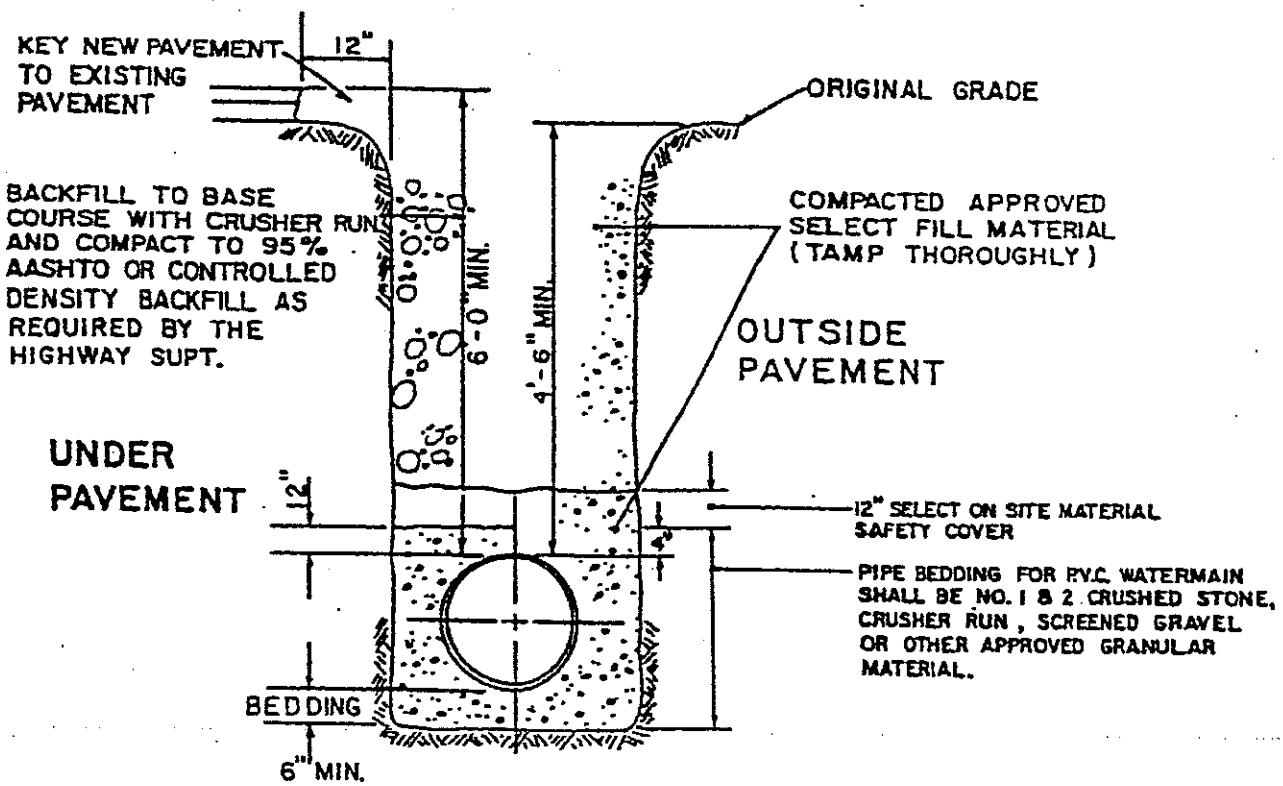
SECTION A–A

CORNER SIDEWALK DETAIL

LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.7

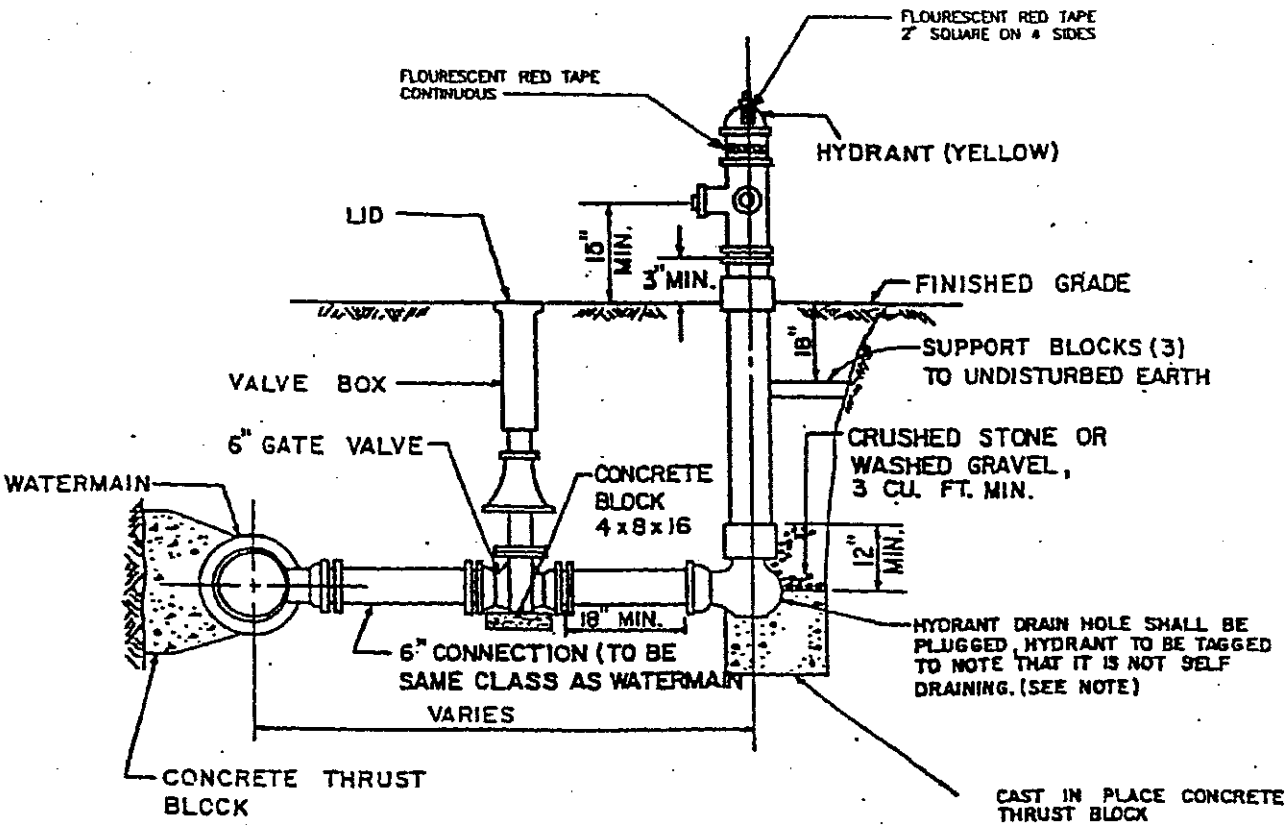


TYPICAL CONCRETE ENCASEMENT DETAIL



WATER MAIN TRENCH DETAIL

LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.8

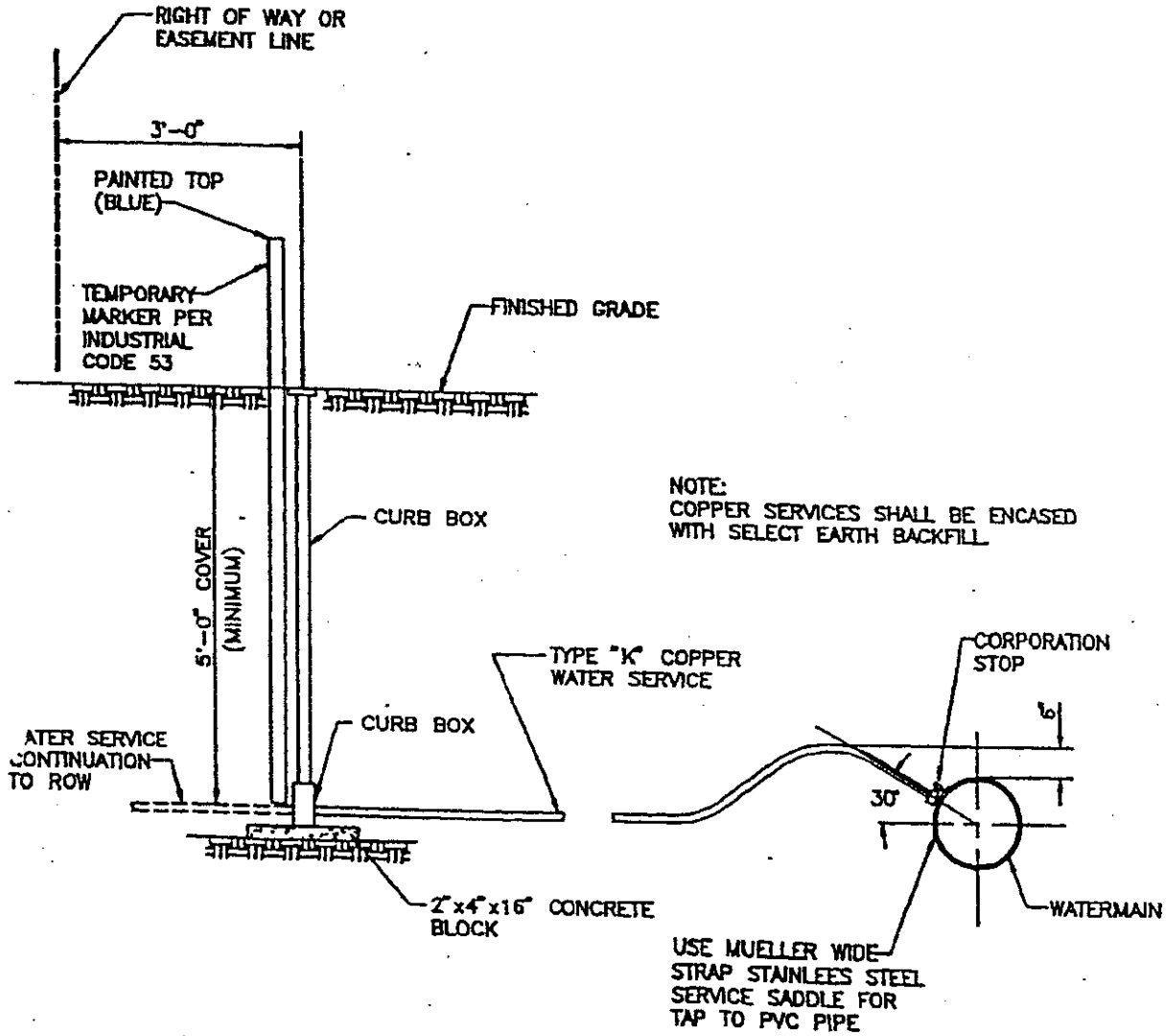


NOTE:
IF THE LOCATION OF THE HYDRANT DRAIN HOLE IS ABOVE MEAN GROUNDWATER ELEVATION, AS DETERMINED BY THE TOWN ENGINEER, THE DRAIN HOLE IS NOT TO BE PLUGGED.

TYPICAL HYDRANT CONNECTION

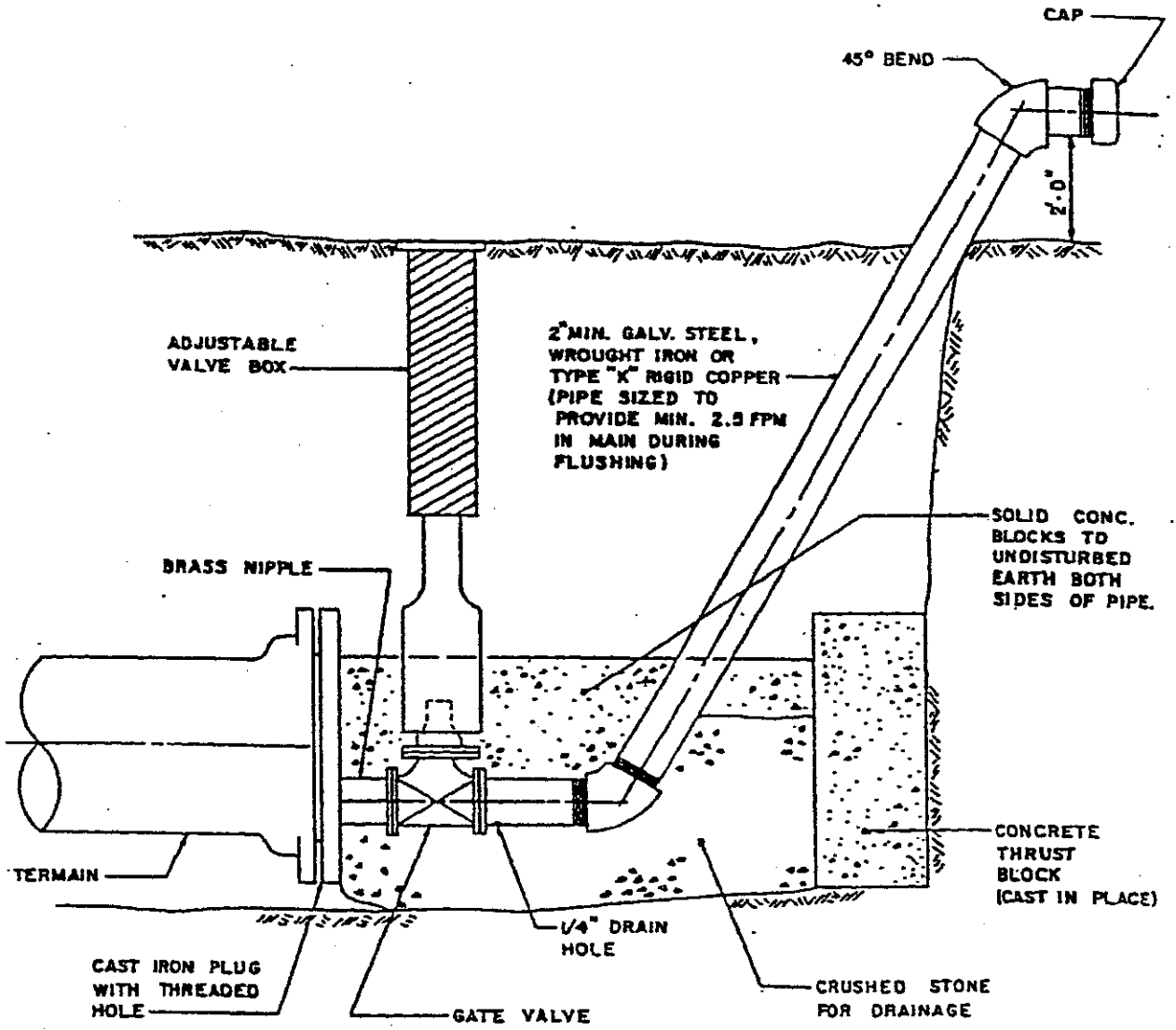
LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.9

NOTE:
WATER SERVICE CURB BOXES ARE NOT TO BE LOCATED IN DRIVEWAYS.



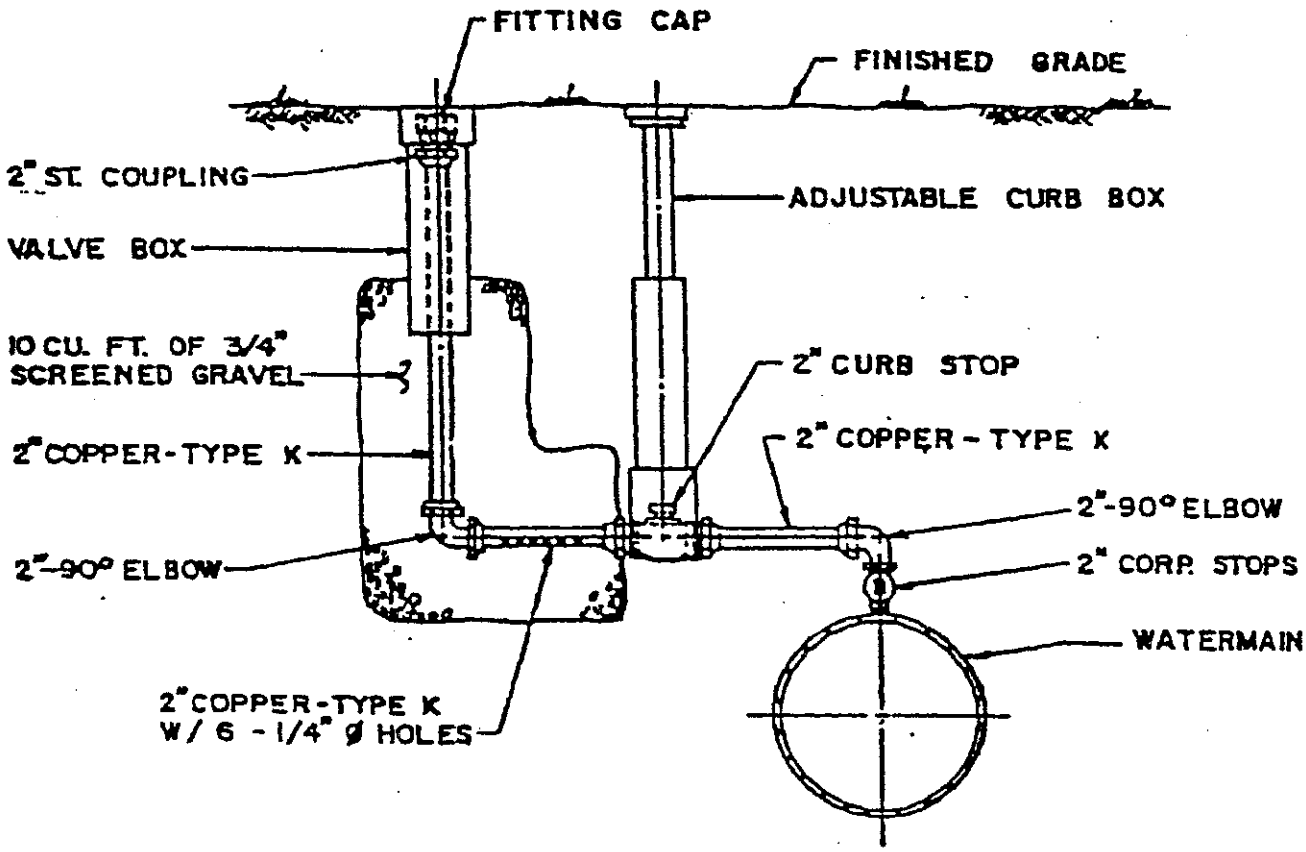
TYPICAL WATER SERVICE DETAIL

LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.10



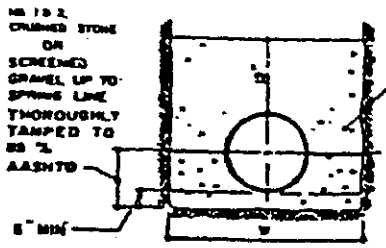
BLOWOFF DETAIL

LAST REVISED	WALWORTH STANDARD DETAILS
12/07/07	DETAIL A.11

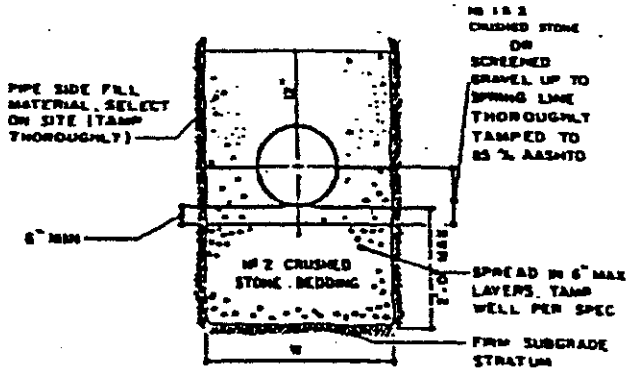


MANUAL AIR RELEASE

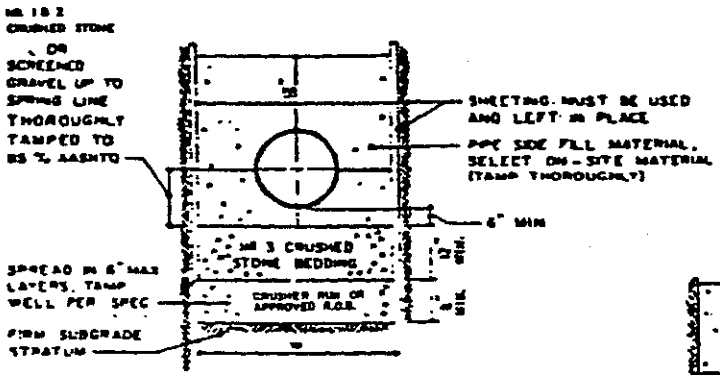
LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.12



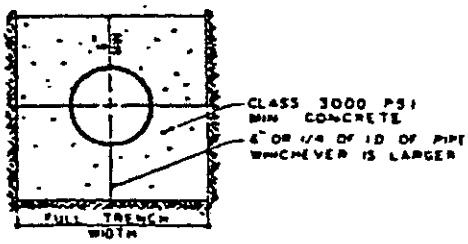
NORMAL SOIL CONDITIONS
TYPE I



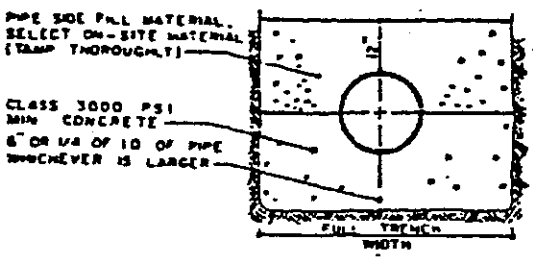
MODERATELY UNSTABLE
SOIL CONDITIONS
TYPE II



UNSTABLE SOIL CONDITIONS
TYPE III



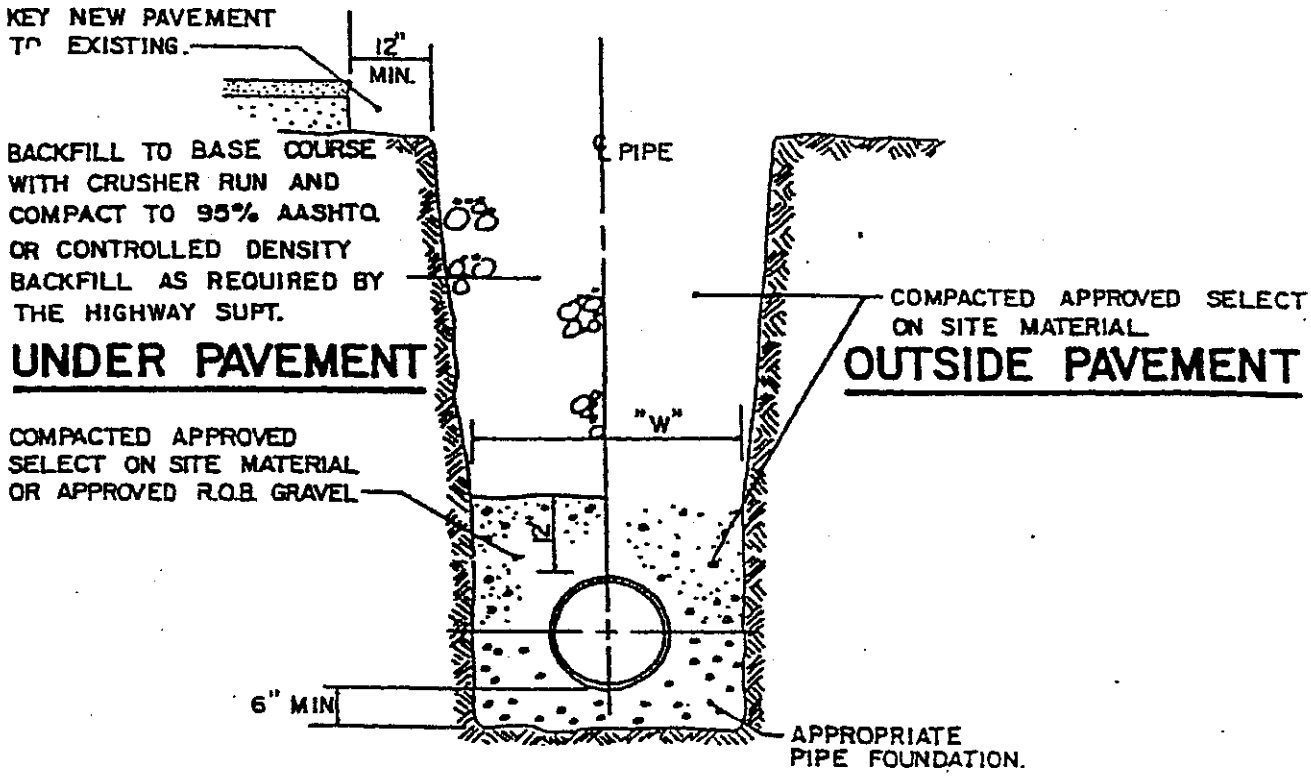
CONCRETE ENCASEMENT
TYPE IV



CONCRETE CRADLE
TYPE V

SEWER PIPE FOUNDATION DETAILS

LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.13



TRENCH DETAIL

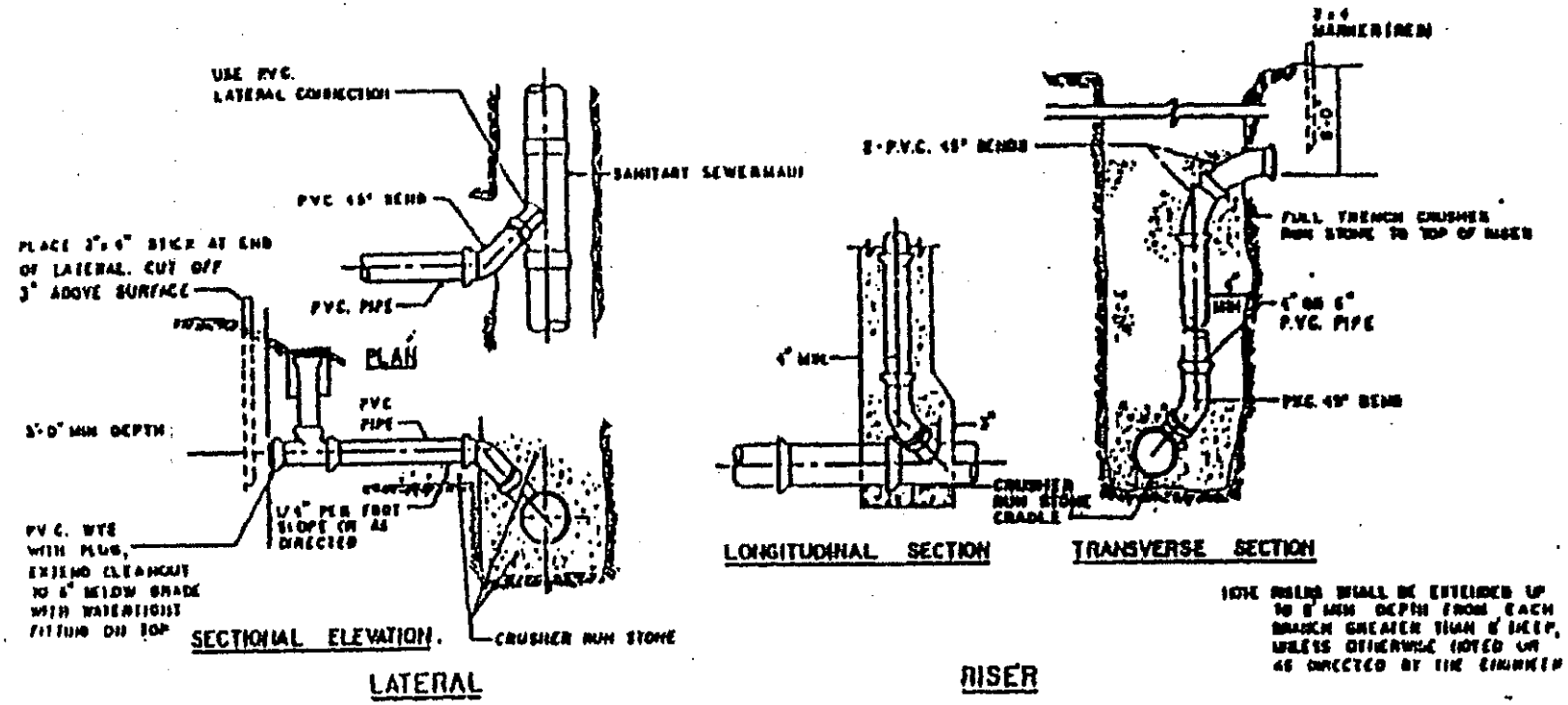
TRENCH WIDTH EXCAVATION. LIMITS			
INTERNAL DIAMETER OF PIPE	"W" WIDTH OF TRENCH		"W" - TRENCH WIDTH AT TOP OF PIPE.
	MAX.	MIN.	
4" - 6"	3' - 2"	2' - 0"	
8"	3' - 4"	2' - 2"	
10"	3' - 6"	2' - 4"	
12"	3' - 9"	2' - 7"	
14" - 15"	4' - 1"	2' - 11"	
16"	4' - 2"	3' - 0"	

SEWER PIPE TRENCH DETAILS

LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.14

LAST REVISED
12/07/07

WALWORTH STANDARD DETAILS
DETAIL A.15

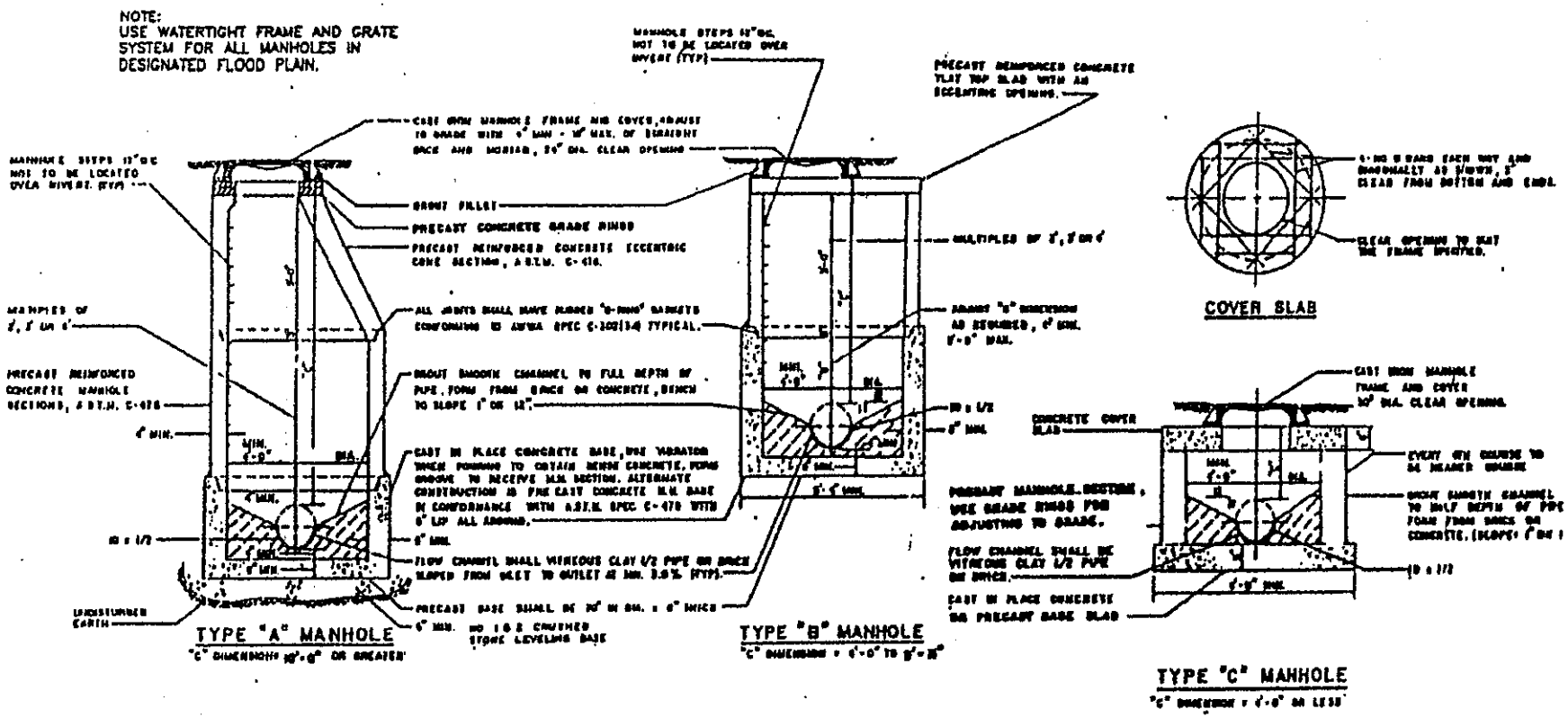


NOTE:
WHERE CLEANOUT IS LOCATED IN DRIVE AREAS PLACE 12" SCH40 STEEL PIPE AROUND CLEANOUT WITH MUELLER H-10810 CAST IRON METER PIT COVER.

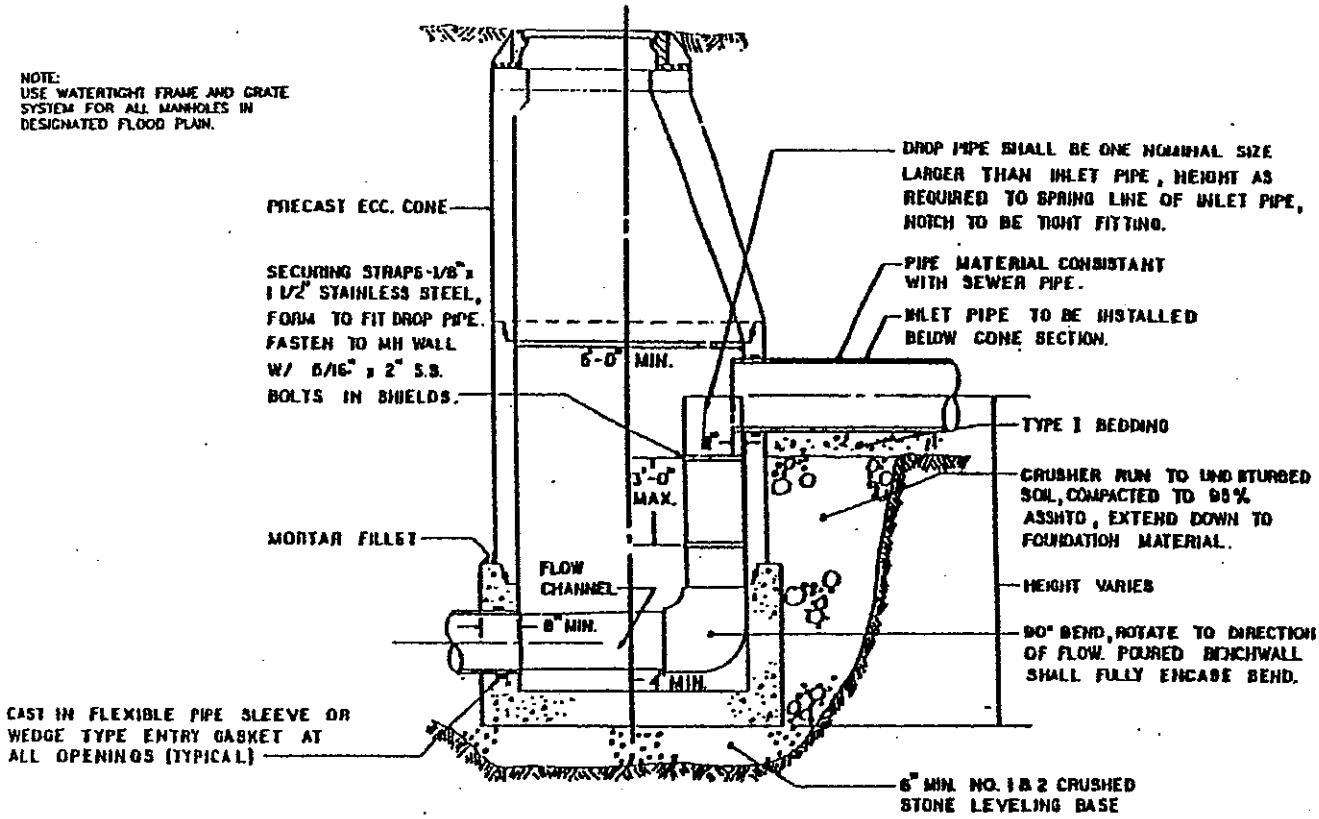
WATER MAIN TRENCH DETAIL

LAST REVISED
12/07/07

WALWORTH STANDARD DETAILS
DETAIL A.16



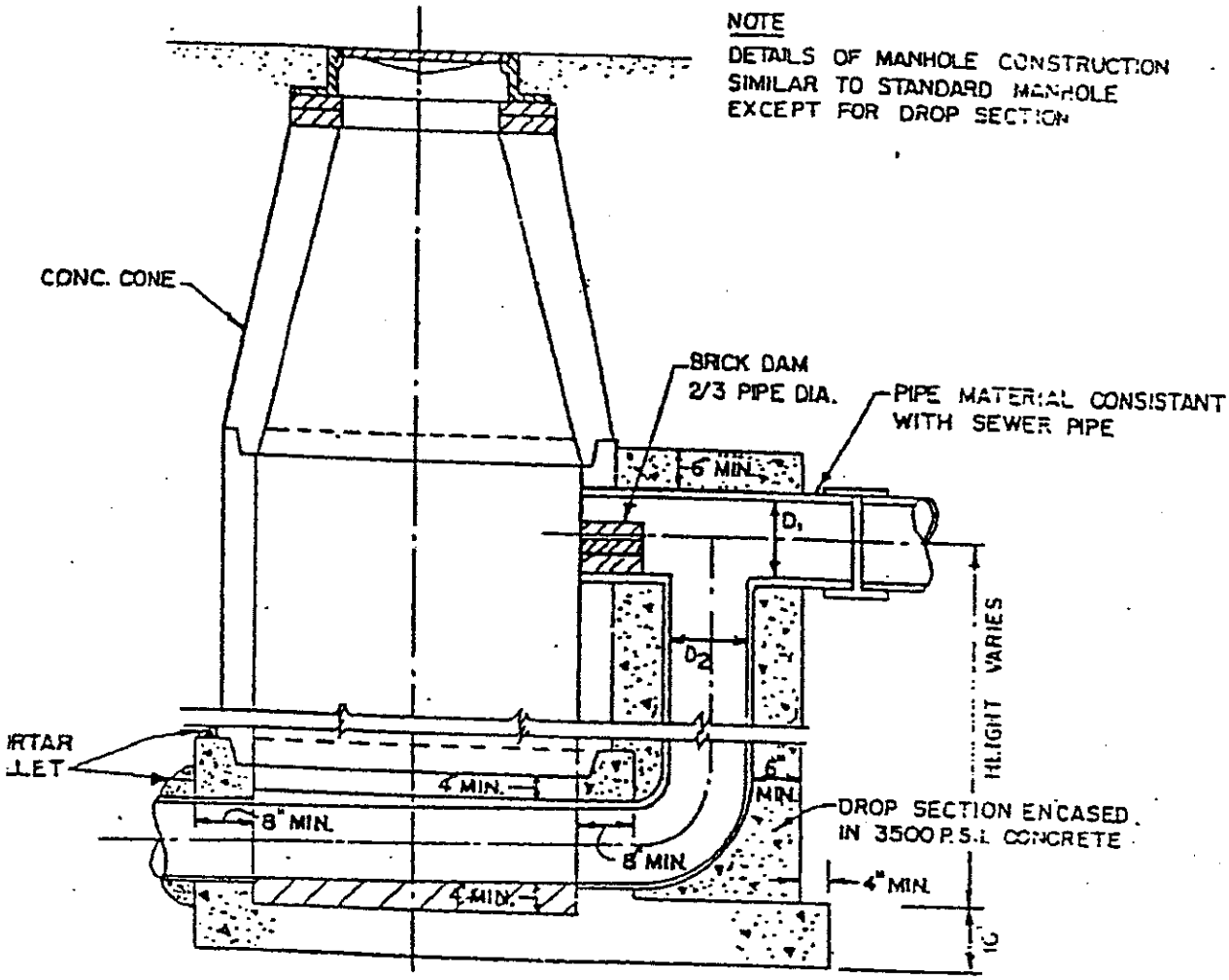
MANHOLE DETAILS



DROP MANHOLE

TO BE USED WHEN ONE DIVERT OF THE INLET SEWER IS MORE THAN TWO (2) FEET HIGHER THAN THE OUTLET AND INLET PIPE IS LESS THAN 18" IN DIAMETER.

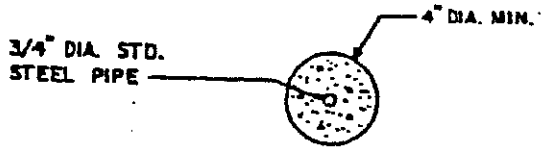
LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.17



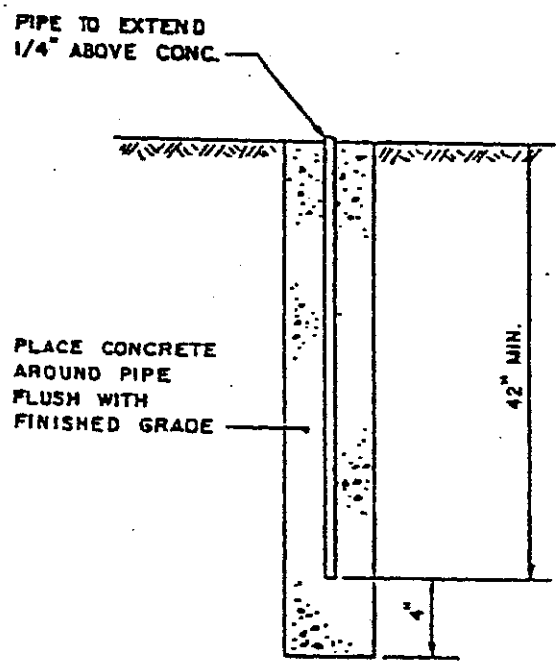
TYPICAL DROP SECTION

TO BE USED FOR MULTIPLE DROP INLETS OR INLET DIAMETERS OF 18" OR MORE.

LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.18



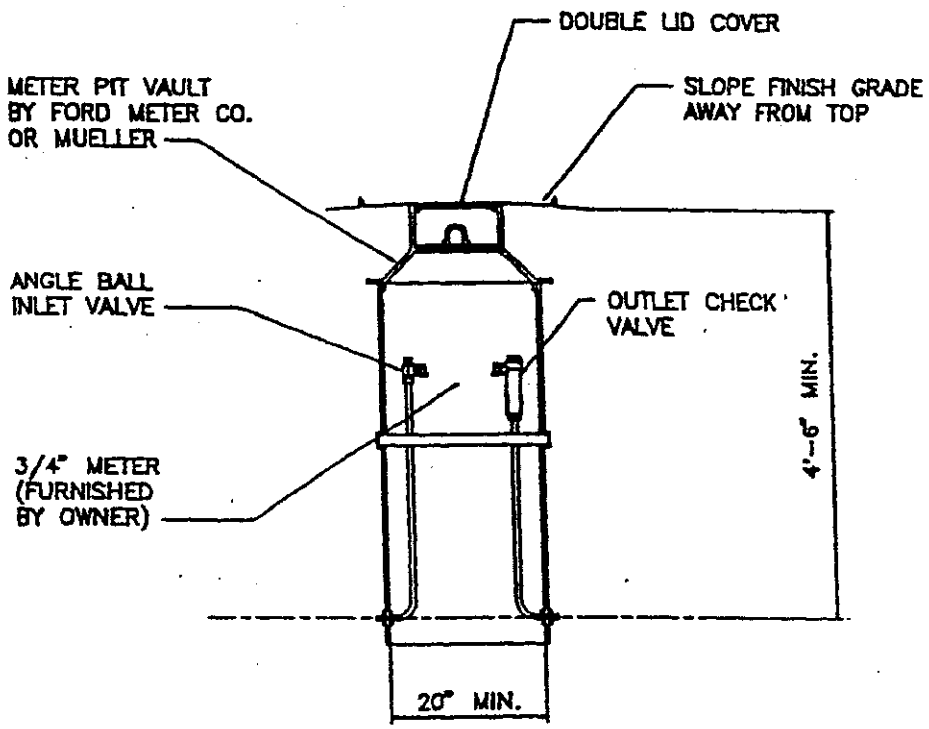
PLAN



SECTION

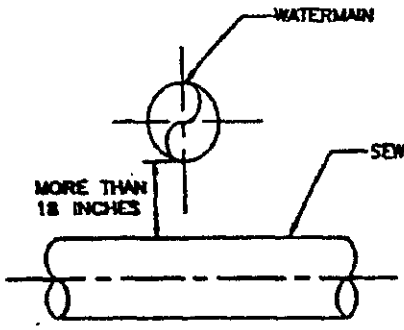
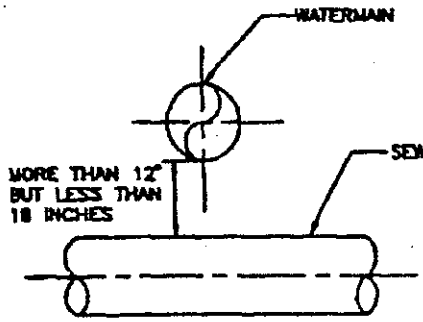
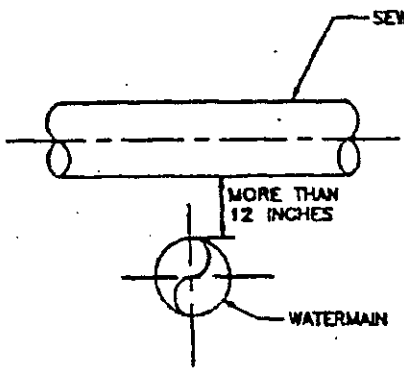
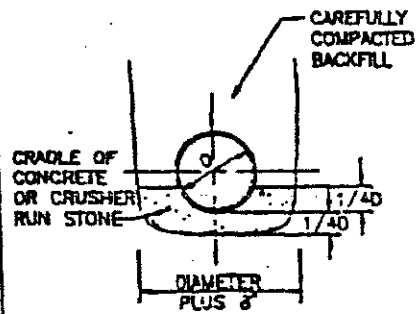
MONUMENT DETAIL

LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.19



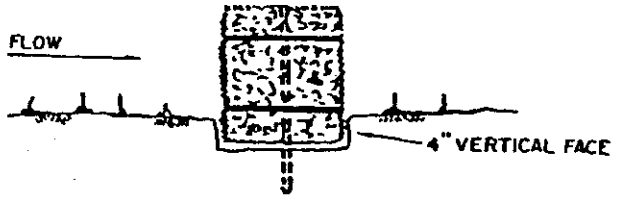
INDIVIDUAL METER VAULT DETAIL

LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.20

CONDITION	SCHEMATIC	REQUIREMENTS
I WATERMAIN ABOVE SEWER MAIN		A) WATERMAIN AND SEWER MAIN PIPE LENGTHS TO BE CENTERED AT CROSSING. EACH LENGTH TO BE 10 FEET MINIMUM.
II WATERMAIN ABOVE SEWER MAIN		A) WATERMAIN AND SEWER MAIN PIPE LENGTHS TO BE CENTERED AT CROSSING. EACH LENGTH TO BE 10 FEET MINIMUM. B) WHEN BOTH WATERMAIN AND SEWER MAIN ARE NEW, SLEEVE SEWER MAIN WITH STEEL CASING FOR 10 FEET EACH SIDE OF CROSSING. OR WHEN ONE LINE IS EXISTING, SLEEVE NEW PIPE WITH STEEL CASING FOR 10 FEET EACH SIDE OF CROSSING.
III SEWER MAIN ABOVE WATERMAIN		A) WATERMAIN AND SEWER MAIN PIPE LENGTHS TO BE CENTERED AT CROSSING. EACH LENGTH TO BE 10 FEET MINIMUM. B) SLEEVE SEWER MAIN WITH STEEL CASING FOR 10 FEET EACH SIDE OF CROSSING. C) PROVIDE CRADLE OF CONCRETE OR CRUSHER RUN STONE (SEE DETAIL) FOR WATERMAIN AND SEWER MAIN FOR 10 FEET EACH SIDE OF CROSSING
NOTES: 1) IN NO CASE SHALL THE PIPES BE CLOSER THAN 12" APART. DISTANCES ARE MEASURED BETWEEN OUTSIDES OF PIPES.		

TYPICAL WATER MAIN/ SEWER CROSSING DETAIL

LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.21

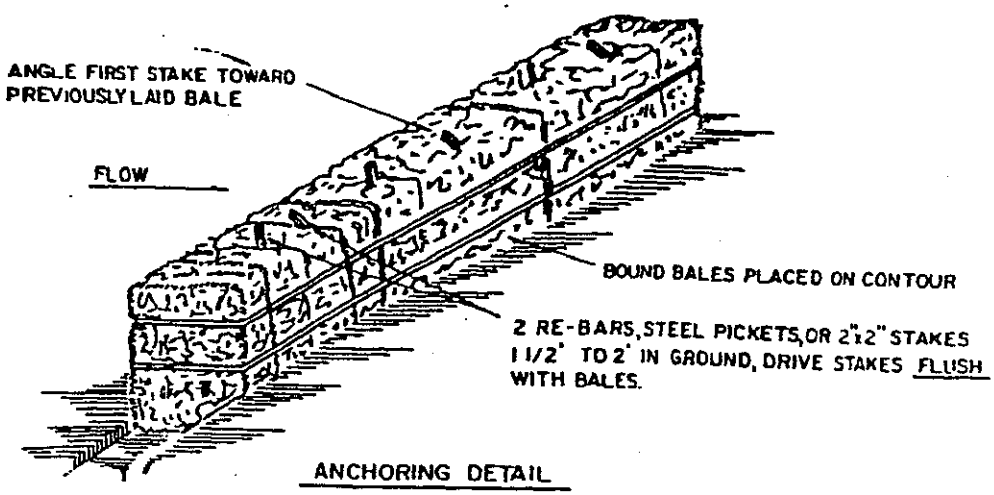


BEDDING DETAIL

STANDARD SYMBOL

SBD

DRAINAGE AREA NO MORE THAN 1/4 ac. PER 100 FEET OF STRAW BALE DIKE FOR SLOPES LESS THAN 25%



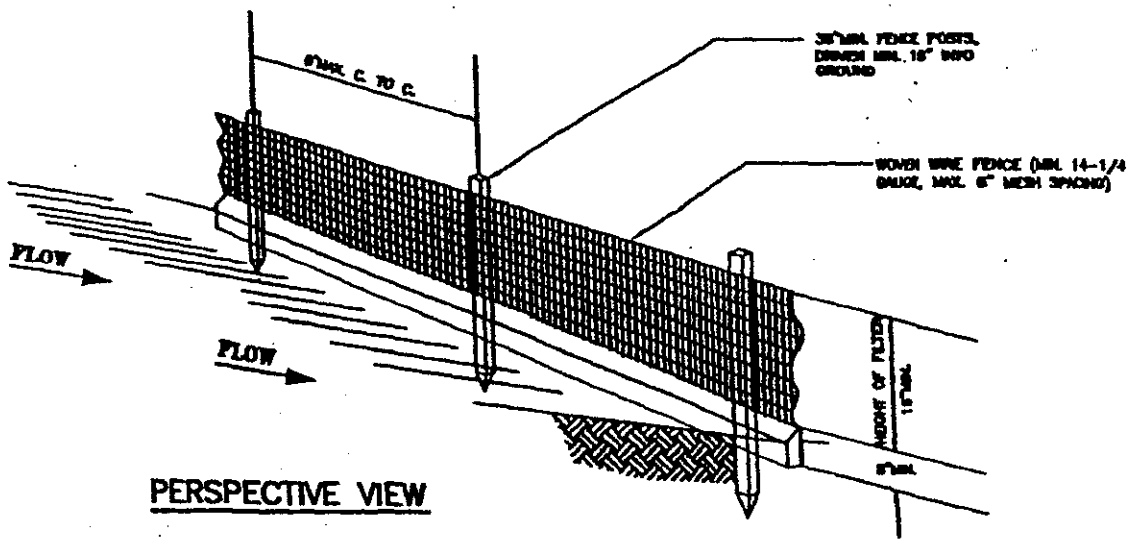
ANCHORING DETAIL

CONSTRUCTION SPECIFICATIONS

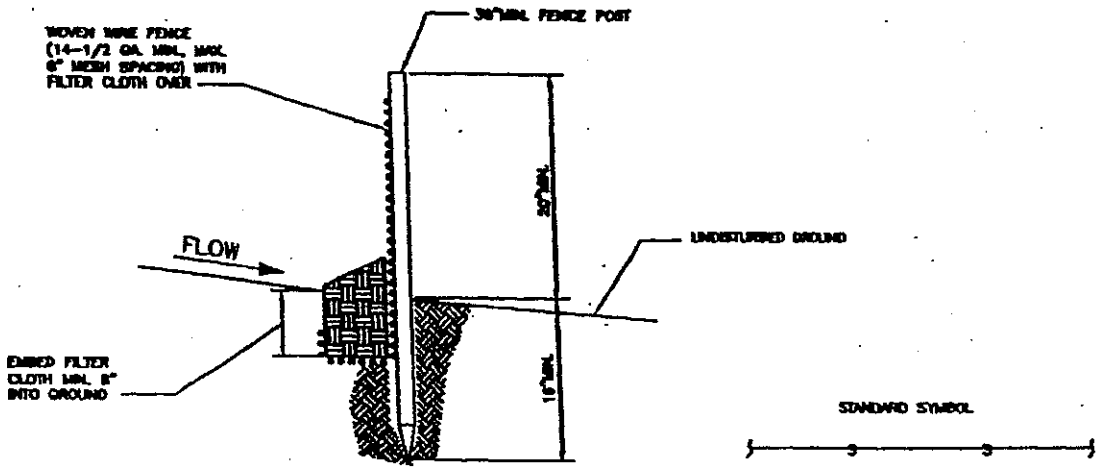
1. BALES SHALL BE PLACED AT THE TOE OF A SLOPE OR ON THE CONTOUR AND IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
2. EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF (4) INCHES, AND PLACED SO THE BINDINGS ARE HORIZONTAL.
3. BALES SHALL BE SECURELY ANCHORED IN PLACE BY EITHER TWO STAKES OR RE-BARS DRIVEN THROUGH THE BALE. THE FIRST STAKE IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE AT AN ANGLE TO FORCE THE BALES TOGETHER. STAKES SHALL BE DRIVEN FLUSH WITH THE BALE.
4. INSPECTION SHALL BE FREQUENT AND REPAIR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
5. BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

STRAW BALE DIKE DETAIL

LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.22



PERSPECTIVE VIEW



SECTION

CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.

2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID-SECTION.

3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.

4. MAINTENANCE SHALL BE PERFORMED AFTER EVERY RAINFALL IN EXCESS OF 0.25 INCH AND MATERIAL REMOVED WHEN "BULGES" DEVELOPE IN THE SILT FENCE.

POSTS: STEEL EITHER T OR U TYPE OR 2" HARDWOOD

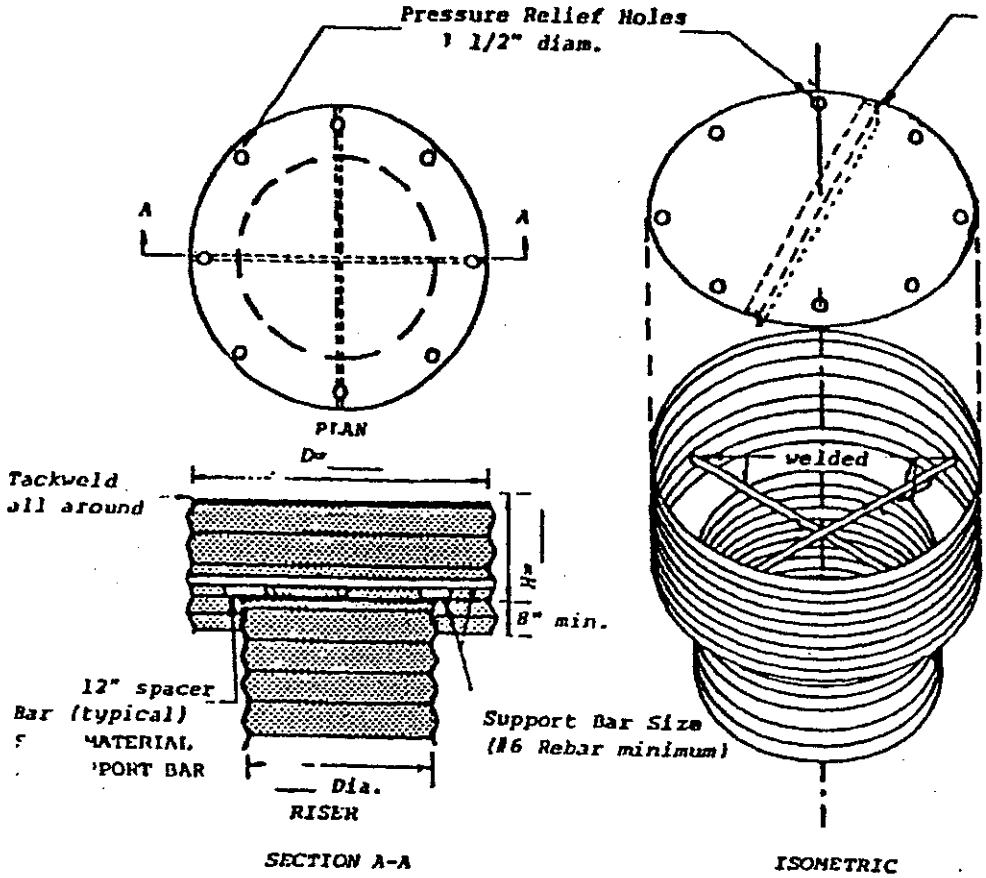
FENCE: WOVEN WIRE 14-1/2 GAUGE 6"MAX. MESH OPENING

FILTER CLOTH: FILTER X, MIRAFI 100X, STABILINKA T140N OR APPROVED EQUAL

PREFABRICATED UNIT: GEOFAB, ENVIROFENCE OR APPROVED EQUAL

SILT FENCE DETAIL

LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.23



Top stiffener (if required) is ____x____x____ angle welded to top and oriented perpendicular to corrugations.

Top is ____ gage corrugated metal or 1/8" steel plate. Pressure relief holes may be omitted, if ends of corrugations are left fully open when corrugated top is welded to cylinder.

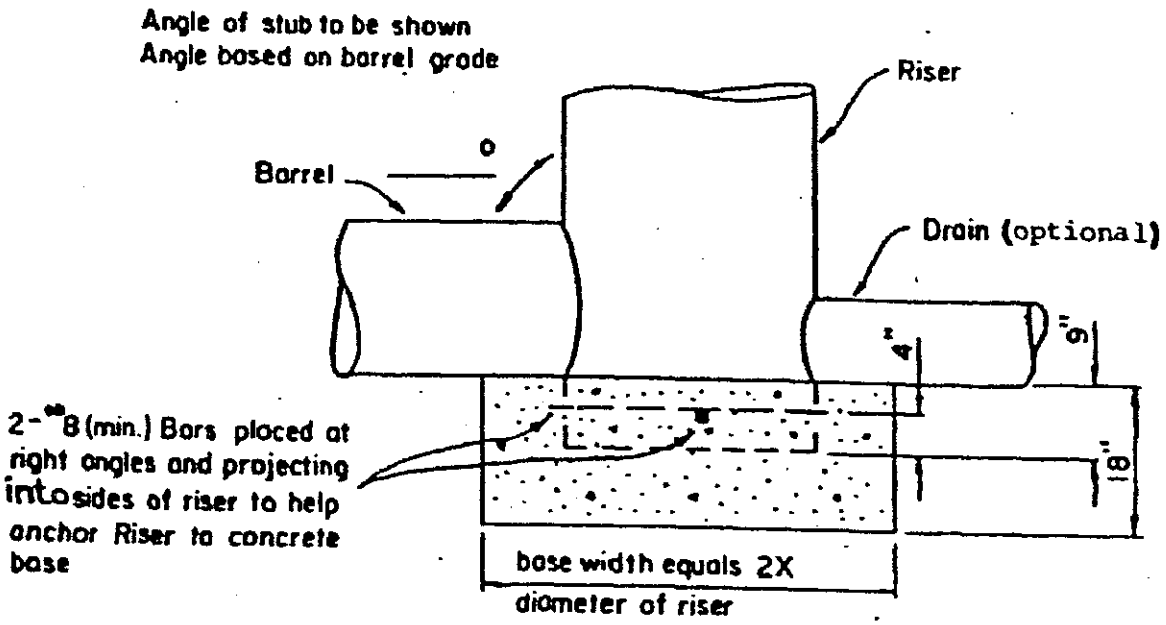
Cylinder is ____ gage corrugated metal pipe or fabricate from 1/8" steel plate.

Notes:
1) The cylinder must be firml fastened to the top of the riser.
2) Support bars are welded to the top of the riser or attached by straps bolted to top of riser.

CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE
(not to scale)

TRASH RACK AND ANTI-VORTEX DEVICE

LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.25



RISER BASE DETAIL

NOTES:

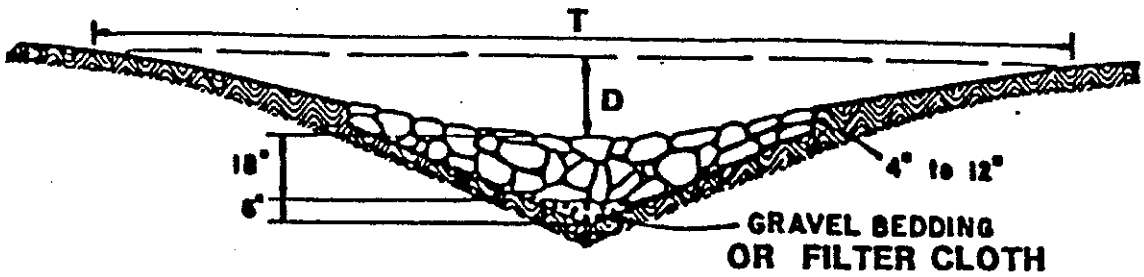
1. The concrete base shall be poured in such a manner to insure that the concrete fills the bottom of the riser to the invert of the outlet pipe to prevent the riser from breaking away from the base.

2. With aluminum or aluminized pipe, the embedded section must be painted with zinc chromate or equivalent.

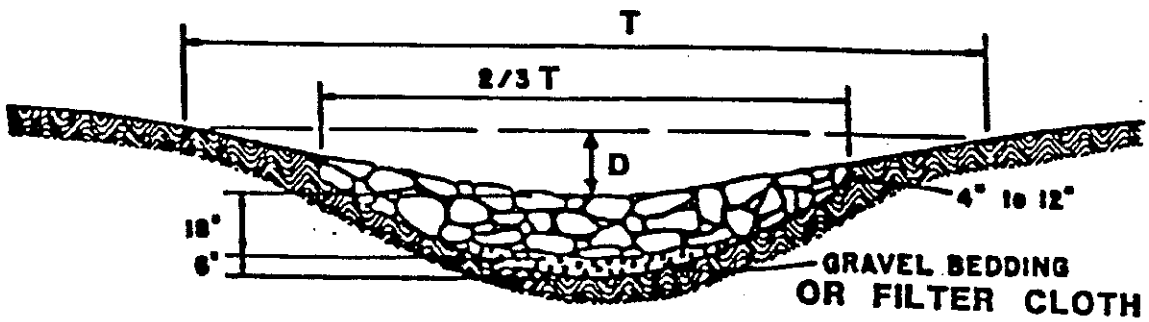
3. Riser baser may be sized as computed using floatation with a factor of safety of 1.2.

RISER BASE DETAIL

LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.26



Waterway with stone center drain
V. section shaped by motor patrol

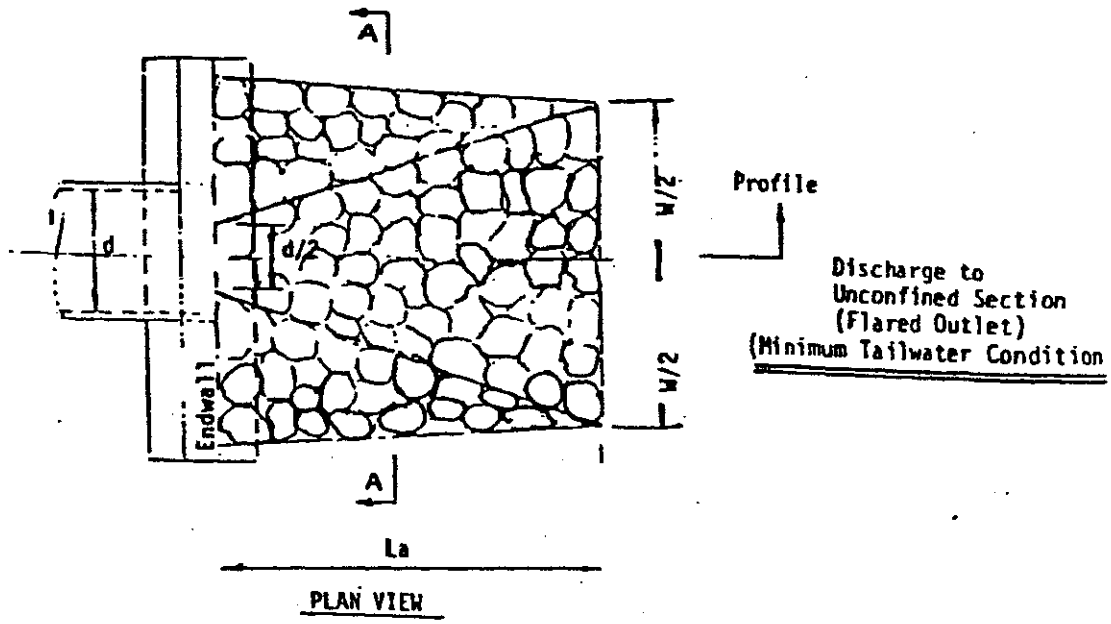


Waterway with stone center drain
Rounded section shaped by bulldozer

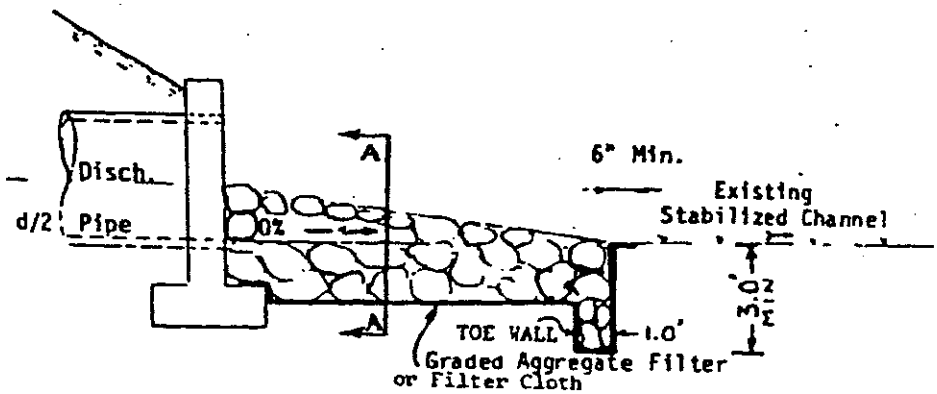
Waterway with stone center .

WATERWAY CROSS SECTIONS

LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.27

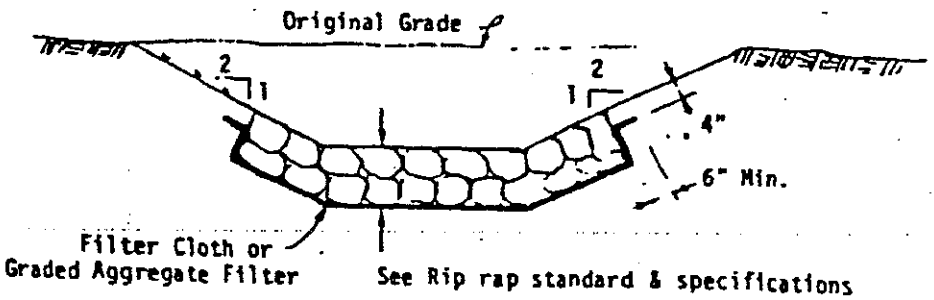


PLAN VIEW



PROFILE VIEW

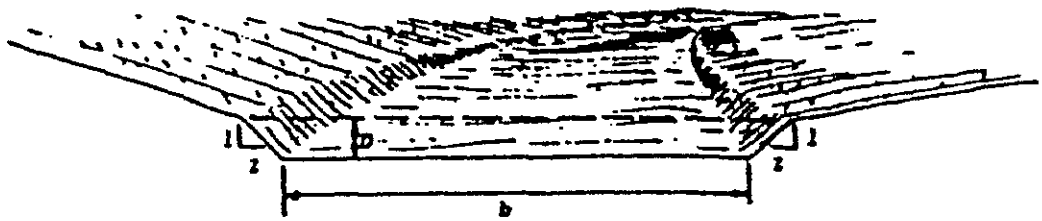
Rip rap to be embedded in proposed transition section



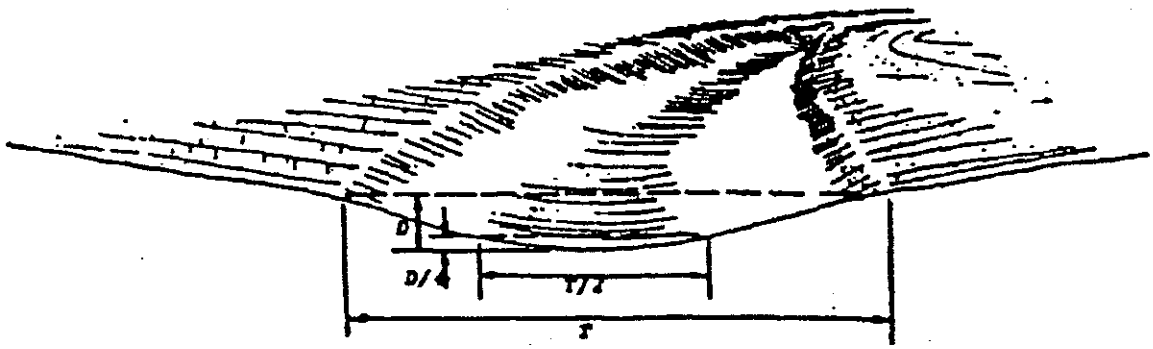
CROSS SECTION A-A

RIPRAP OUTLET PROTECTION

LAST REVISED	WALWORTH STANDARD DETAILS
12/07/07	DETAIL A.28



TRAPEZOIDAL CROSS-SECTION



PARABOLIC CROSS-SECTION

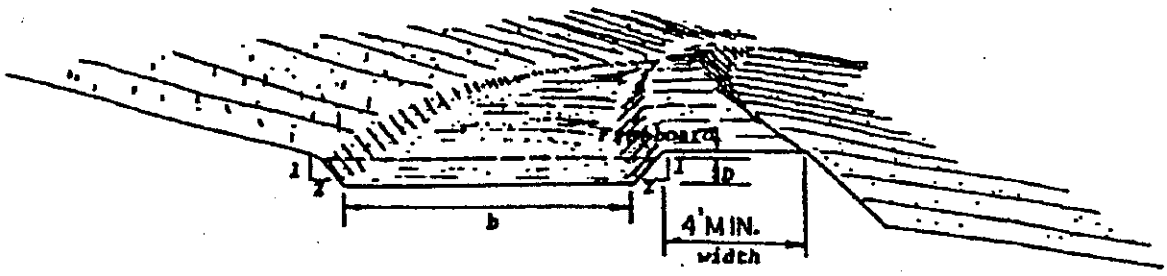
Construction Specifications

1. All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of so as not to interfere with the proper functioning of the waterway.
2. The waterway shall be excavated or shaped to line, grade, and cross section as required to meet the criteria specified herein, and be free of bank projections or other irregularities which will impede normal flow.
3. Fills shall be compacted as needed to prevent unequal settlement that would cause damage in the complete waterway.
4. All earth removed and not needed in construction shall be spread or disposed of so that it will not interfere with the functioning of the waterway.
5. Stabilization shall be done according to the appropriate Standard and Specifications for Vegetative Practices.
   A. For design velocities of less than 3.5 ft. per sec., seeding and mulching may be used for the establishment of the vegetation. It is recommended that, when conditions permit, temporary diversions or other means should be used to prevent water from entering the waterway during the establishment of the vegetation.
   B. For design velocities of more than 3.5 ft. per sec., the waterway shall be stabilized with sod, with seeding protected by jute or excelsior matting or with seeding and mulching including temporary diversion of the water until the vegetation is established
   C. Structural - Vegetative Protection
      (1) Subsurface drain for base flow shall be constructed as shown on the Standard Drawing and as specified in the Standard and Specifications for Subsurface Drain.

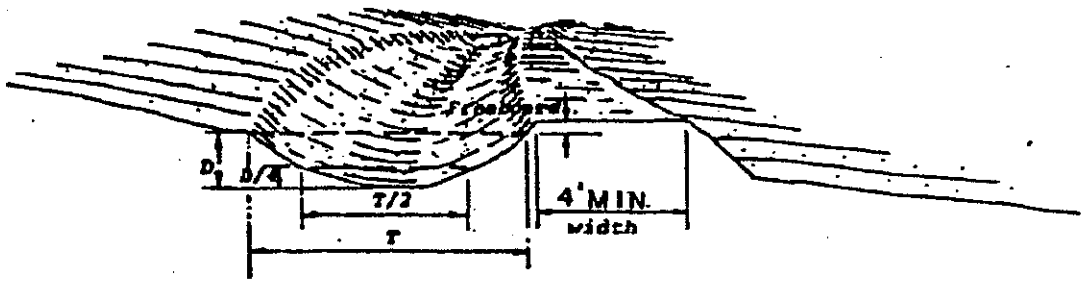
Standard Symbol 

GRASSED WATERWAY CONSTRUCTION DETAILS

LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.29



TRAPEZOIDAL CROSS-SECTION



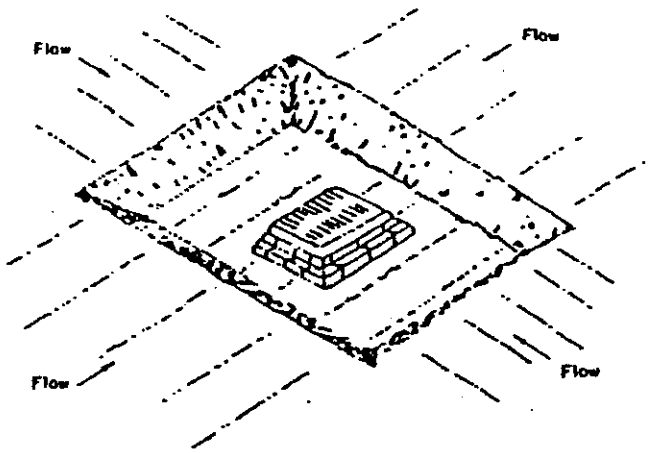
PARABOLIC CROSS-SECTION

Construction Specifications

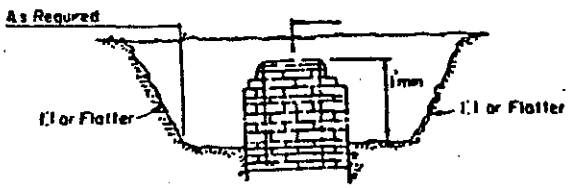
1. All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of so as not to interfere with the proper functioning of the diversion.
2. The diversion shall be excavated or shaped to line, grade, and cross section as required to meet the criteria specified herein, and be free of irregularities which will impede normal flow.
3. Fills shall be compacted as needed to prevent unequal settlement that would cause damage in the completed diversion.
4. All earth removed and not needed in construction shall be spread or disposed of so that it will not interfere with the functioning of the diversion.
5. Stabilization shall be done according to the appropriate Standard and Specifications for Vegetative Practices.
   A. For design velocities of less than 3.5 ft. per sec., seeding and mulching may be used for the establishment of the vegetation. It is recommended that, when conditions permit, temporary diversions or other means be used to prevent water from entering the diversion during the establishment of the vegetation.
   B. For design velocities of more than 3.5 ft. per sec., the diversion shall be stabilized with sod, with seeding protected by jute or excelsior matting or with seeding and mulching including temporary diversion of water until the vegetation is established. See the Standard and Specifications for Protective Materials.

DIVERSION DETAIL

LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.30



YARD DRAIN



CROSS SECTION

CONSTRUCTION SPECIFICATION FOR ST-III

1. Sediment shall be removed and the trap restored to its original dimensions when the sediment has accumulated to ½ the design depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.

2. The volume of sediment storage shall be 1800 cubic feet per acre of contributory drainage.

3. The structure shall be inspected after each rain and repairs made as needed.

4. Construction operations shall be carried out in such a manner that erosion and water pollution shall be minimized.

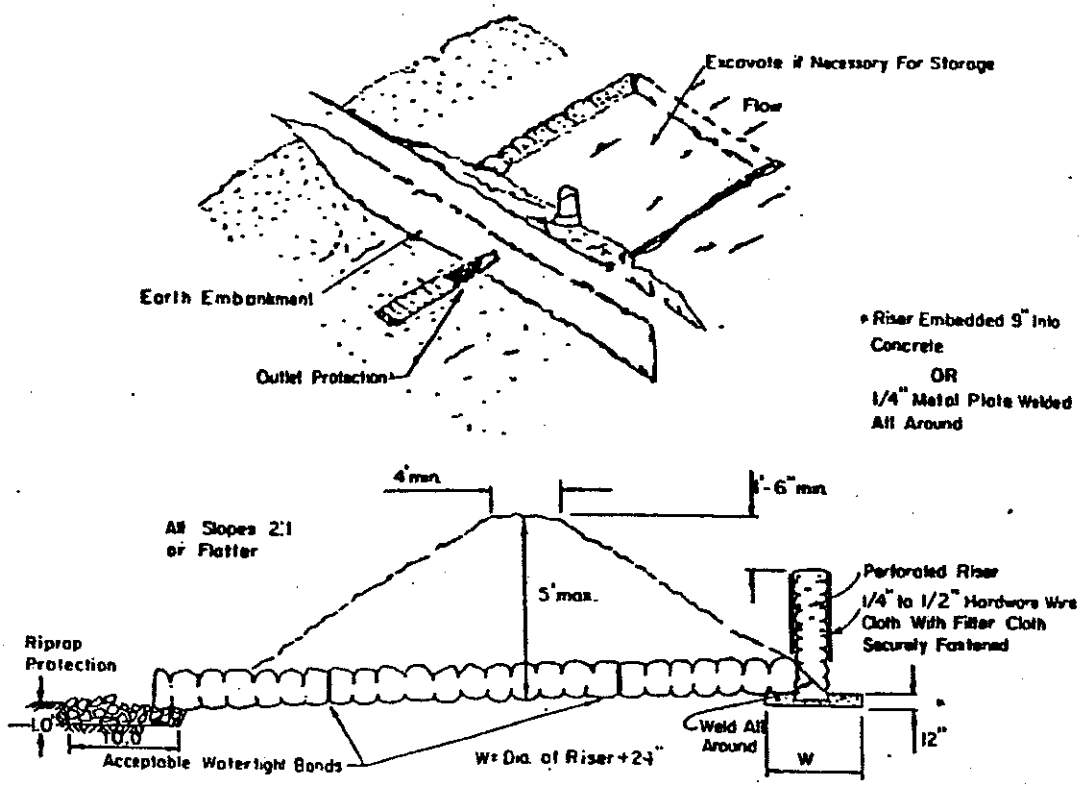
5. The sediment trap shall be removed and the area stabilized when the constructed drainage area has been properly stabilized.

6. All cut slopes shall be 1:1 or flatter.

Maximum Drainage Area: 3 Acres

STORM OUTLET SEDIMENT TRAP

LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.31



EMBANKMENT SECTION THRU RISER

SIZES OF PIPE NEEDED

Barrel Diameter _____ .

Riser Diameter _____ .

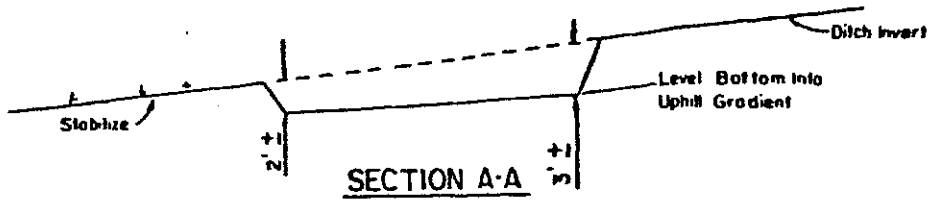
Note:

For Construction Specification see sheet 4.25

Max. Drainage Area: 5 Acres

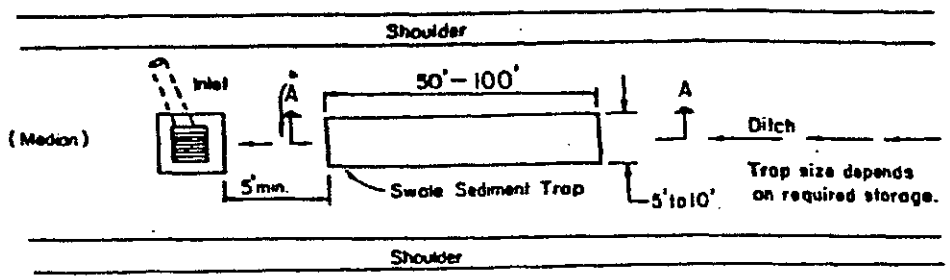
PIPE OUTLET SEDIMENT TRAP

LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.32



SECTION A-A

SWALE SEDIMENT TRAP



* To Remain Stabilized Or Covered With A 6" Lining Of 2" Stone

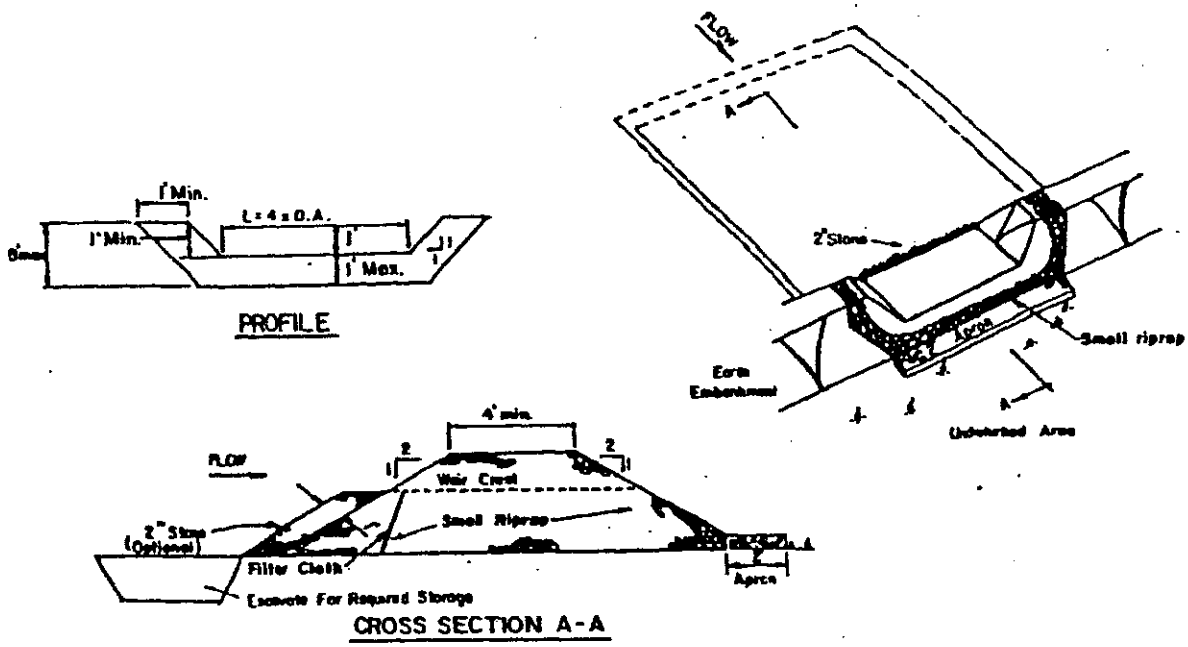
CONSTRUCTION SPECIFICATION FOR ST-IV

1. The swale sediment trap shall be constructed in accordance with the dimensions provided on the design drawings or sized to provide the minimum storage necessary 1800 cubic feet of storage for each acre of drainage area..
2. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to ½ the design depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.
3. The structure shall be inspected after each rain and repairs made as needed.
4. Construction operations shall be carried out in such a manner that erosion and water pollution shall be minimized.
5. The sediment trap shall be removed and area stabilized when the contributory drainage area has been properly stabilized.
6. The swale sediment trap will be properly backfilled and the swale or ditch reconstructed.

Maximum Drainage Area: 2 Acres

SWALE OUTLET SEDIMENT TRAP

LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.33



OPTION: A one foot layer of 2" stone may be placed on the upstream side of the riprap in place of the embedded filter cloth.

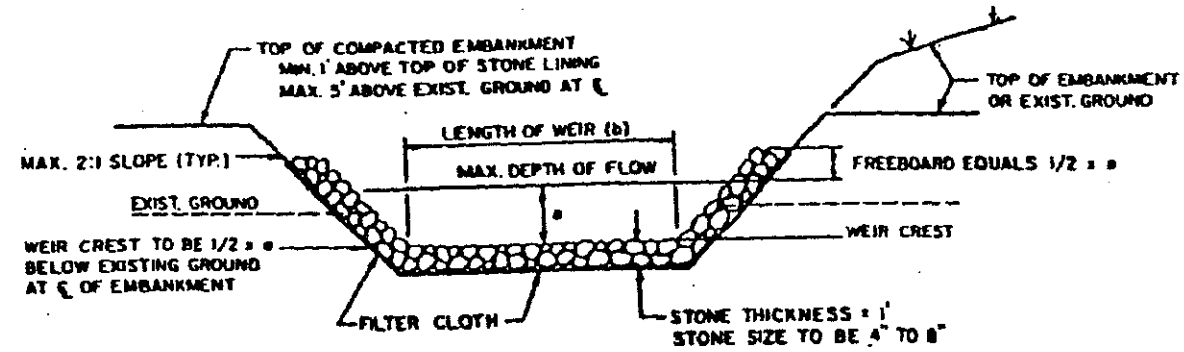
CONSTRUCTION SPECIFICATIONS FOR ST-V

1. Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
2. The fill material for the embankment shall be free of roots and other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.
3. All cut and fill slopes shall be 2:1 or flatter.
4. The stone used in the outlet shall be small riprap 4"-8" along with a 1' thickness of 2" aggregate placed on the up-grade side on the small riprap OR embedded filter cloth in the riprap.
5. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to ½ the design depth of the trap.
6. The structure shall be inspected after each rain and repairs made as needed.
7. Construction operations shall be carried out in such a manner than erosion and water pollution is minimized.
8. The structure shall be removed and the area stabilized when the drainage area has been properly stabilized.

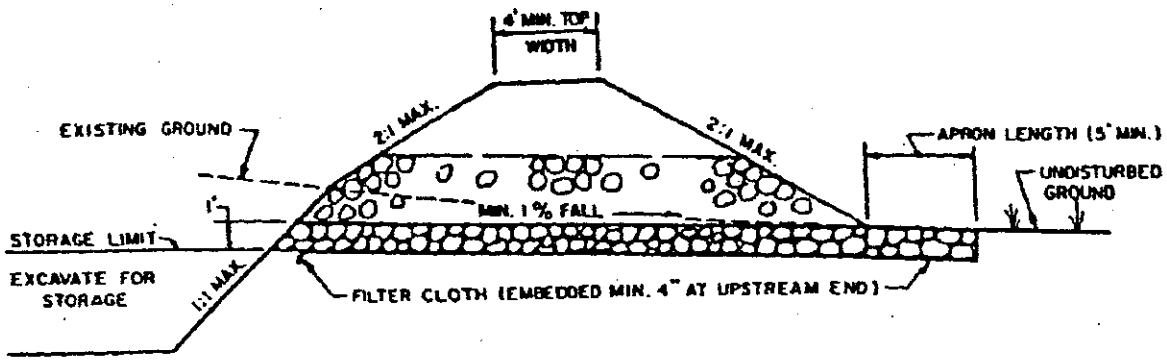
Maximum Drainage Area: 5 Acres

STONE OUTLET SEDIMENT TRAP

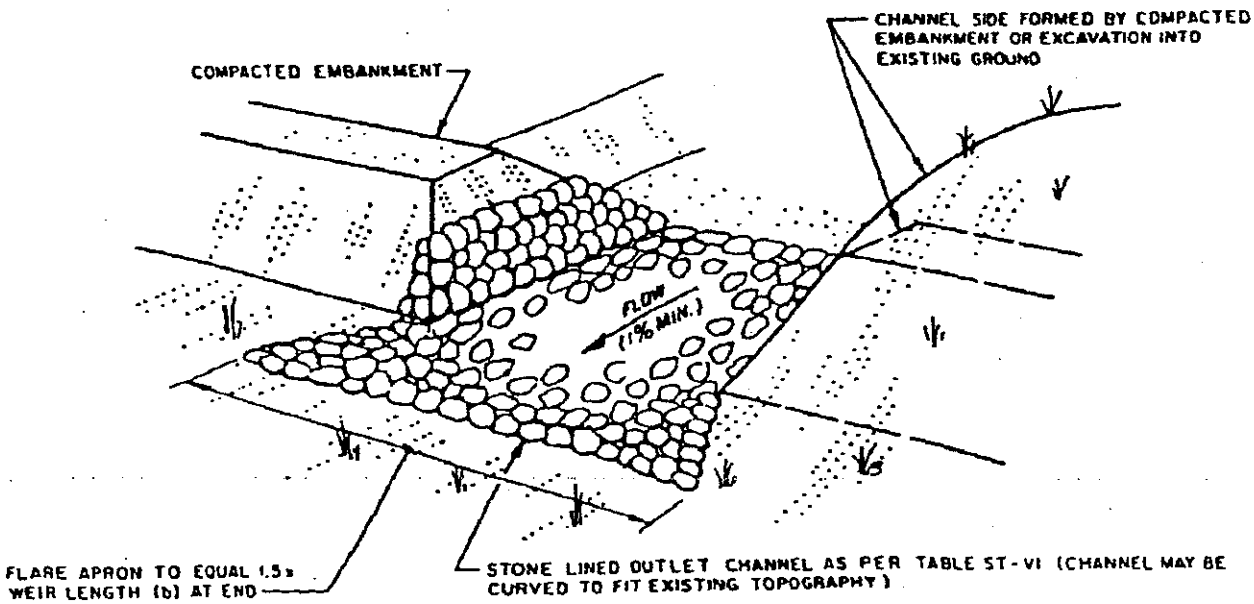
LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.34



PROFILE



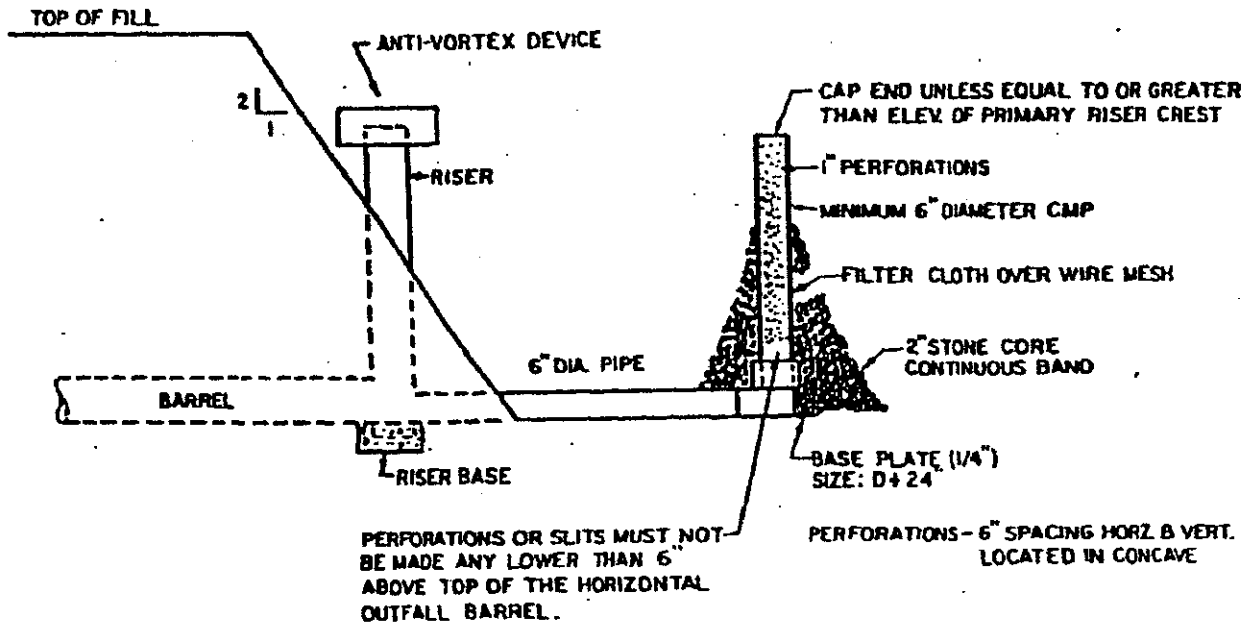
CROSS SECTION



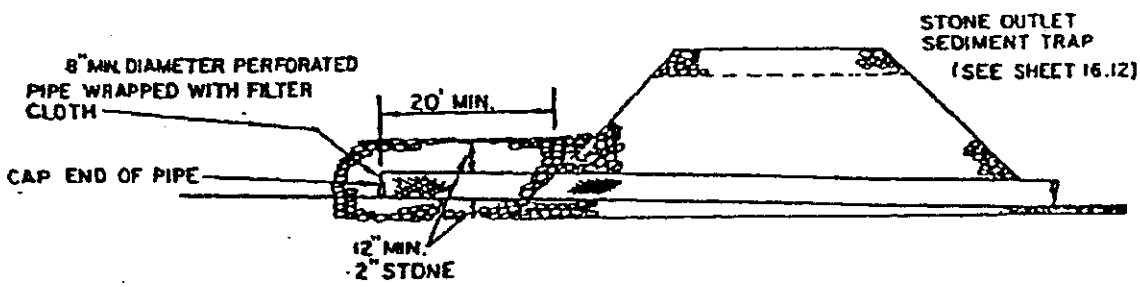
PERSPECTIVE VIEW

RIPRAP OUTLET SEDIMENT TRAP

LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.36

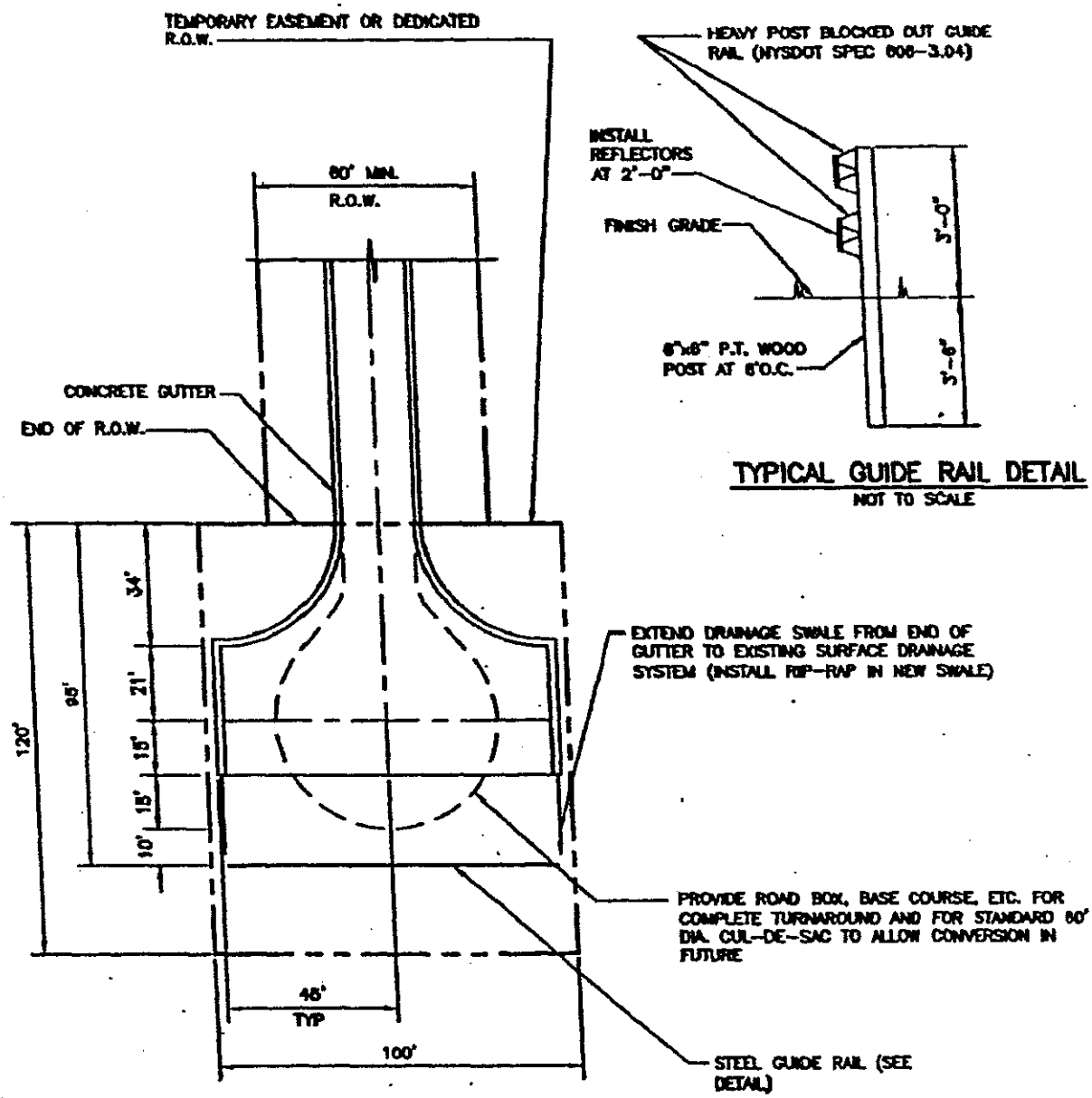


OPTIONAL SEDIMENT TRAP DEWATERING DEVICE-II



OPTIONAL SEDIMENT TRAP DEWATERING DEVICES

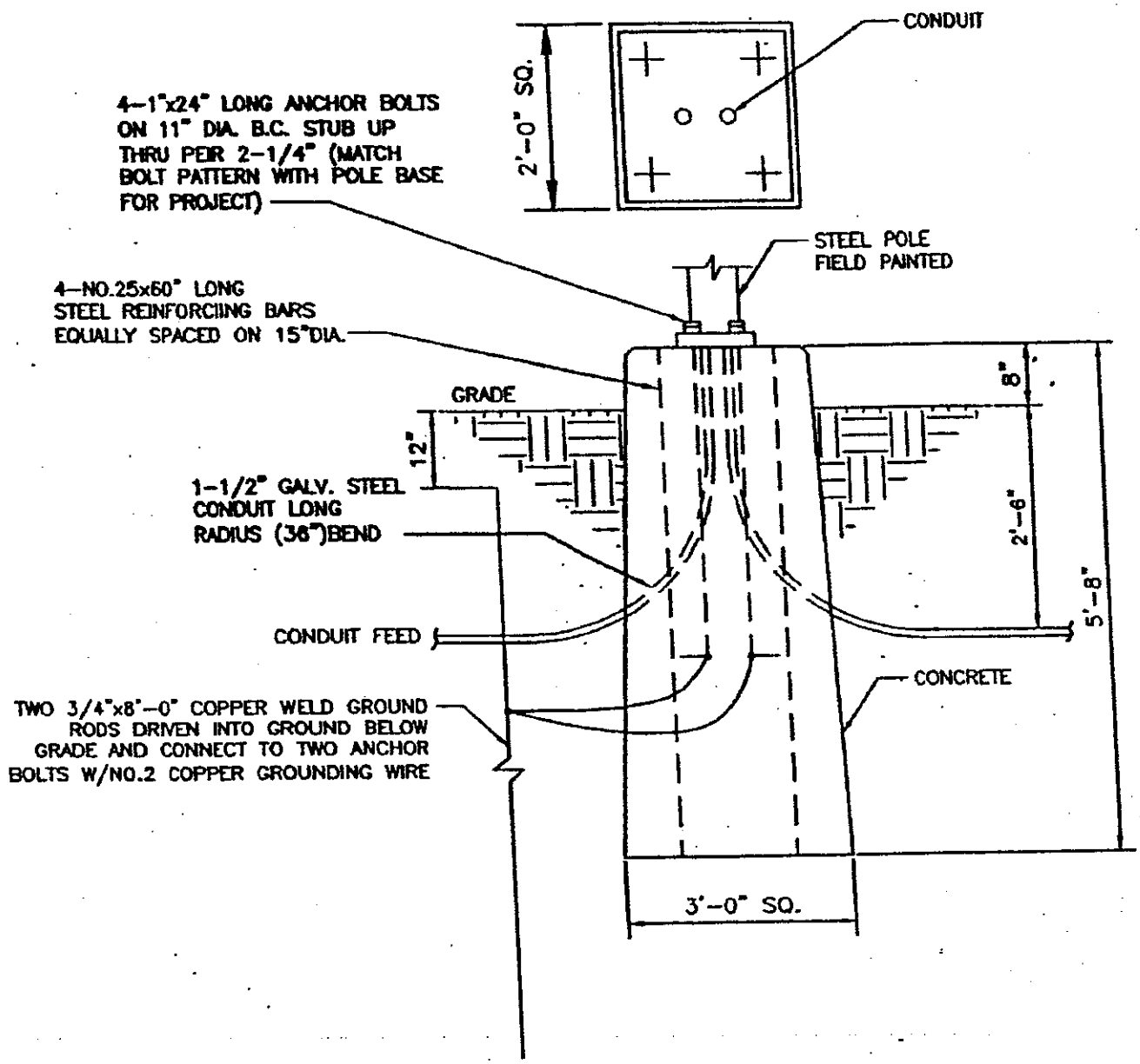
LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.37



TYPICAL GUIDE RAIL DETAIL
NOT TO SCALE

TYPICAL HAMMERHEAD TURN AROUND DETAILS

LAST REVISED	WALWORTH STANDARD DETAILS
12/07/07	DETAIL A.38



LIGHT POLE DETAIL

LAST REVISED 12/07/07	WALWORTH STANDARD DETAILS DETAIL A.39