

CONTRACT DOCUMENTS AND SPECIFICATIONS

for

McDONOUGH STREET AREA PHASE 2 IMPROVEMENTS

City of Portsmouth Job #7146

Bid #32-11

State of New Hampshire

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Prepared by:

City of Portsmouth
Engineering Division
Public Works Department

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City of Portsmouth
Portsmouth, New Hampshire
Department of Public Works

McDONOUGH STREET AREA PHASE 2 IMPROVEMENTS

INVITATION TO BID

Sealed bid proposals, **plainly marked, McDonough Street Area 2 Improvements**, Bid Proposal #32-11 **on the outside of the mailing envelope as well as the sealed bid envelope**, addressed to the Finance/Purchasing Department, City Hall, 1 Junkins Avenue, Portsmouth, New Hampshire, 03801, will be accepted until **March 21st, 2011 at 2:00pm**; at which time all bids will be publicly opened and read aloud.

This project consists of the installation of sanitary sewers, storm drainage, granite curbing, asphalt pavement & concrete sidewalks. Work may begin at any time on or after April 18th, 2011. All sections of the work shall be completed by July 1, 2011. Liquidated damages shall be assessed at \$200.00 per day.

The Contractor will be required to keep roadways and sidewalks passable for the public to the maximum degree possible. The Contractor will also be responsible for ensuring that the public will be able to access the residences at all times.

The General Contractor for this project must be Pre-qualified with NHDOT for Road Construction. The contractor must also be licensed with the City of Portsmouth for laying drains.

Bidders must determine the quantities of work required and the conditions under which the work will be performed.

The City reserves the right, after bid opening and prior to award of the contract, to modify the amount of the work in the event that bids exceed budgeted amounts and/or easements and agreements from one or more impacted property owners are not received. The City of Portsmouth further reserves the right to reject any or all bids, to waive technical or legal deficiencies, to re-bid, and to accept any bid that it may deem to be in the best interest of the City. The City reserves the right to approve or deny subcontractors for this project.

Each Bidder shall furnish a bid security in the amount of ten percent (10%) of the bid. The Bid Security may be in the form of a certified check or a bid bond executed by a surety company authorized to do business in the State of New Hampshire, made payable to the City of Portsmouth, N.H.

Questions may be directed to and specifications may be obtained from the Finance/Purchasing Department on the third floor at the above address, or by calling the Purchasing Clerk at 603-610-7227. Specifications may also be obtained from the City's website <http://www.cityofportsmouth.com/finance/purchasing.htm>.

Addenda to this bid document, if any, including written answers to questions, will be posted on the City's web page under the project heading. Addenda will not be sent directly to plan holders

INSTRUCTIONS TO BIDDERS

BIDDING REQUIREMENTS AND CONDITIONS

1. Special Notice to Bidders

Appended to these instructions is a complete set of bidding and general contract forms. These forms may be detached and executed for the submittal of bids. The plans, specifications, and other documents designated in the proposal form will be considered as part of the proposal, whether attached or not.

The bidders must submit a statement of bidder's qualifications, if requested, subsequent to bid opening but prior to award.

Addenda to this bid document, if any, including written answers to questions, will be posted by March 4th, 2011 on the City of Portsmouth website at <http://www.cityofportsmouth.com/finance/purchasing.htm> under the project heading. Addenda and updates will NOT be sent directly to firms. Contractors submitting a bid should check the web site daily for addenda and updates after the release date. Firms should print out, sign and return addenda with the proposal. Failure to do so may result in disqualification.

2. Interpretation of Quantities in Bid Schedules

The quantities appearing in the bid schedule are approximate only and are prepared for the comparison of bids. Payment to the contractor will be made only for actual work performed and accepted in accordance with the contract. Any scheduled item of work to be done and materials to be furnished may be increased, decreased or omitted as hereinafter provided, and no claim for loss, anticipated profits or costs incurred in anticipation of work not ultimately performed will be allowed due to such increase or decrease.

3. Examination of Plans, Specifications and Site Work

The bidder is expected to examine carefully the site of the proposed work, the plans, standard specifications, supplemental specifications, special provisions and contract forms before submitting a proposal. The submission of a bid shall be considered conclusive evidence that the bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and as to the requirements of the contract. It will be conclusive evidence that the bidder has also investigated and is satisfied with the sources of supply for all materials.

Plans, surveys, measurements, dimensions, calculations, estimates and statements as to the condition under which the work is to be performed are believed to be correct, but the contractors must examine for themselves, as no allowance will be made for any errors or inaccuracies that maybe found therein.

4. Familiarity with Laws

The bidder is assumed to have made himself or herself familiar with all federal and state laws and all local by-laws, ordinances and regulations which in any manner affect those engaged or employed on the work or affect the materials or equipment used in the work or affect the conduct of the work, and the bidder, if awarded the contract, shall be obligated to perform the work in conformity with said laws, by-laws, ordinances and regulations notwithstanding its ignorance thereof. If the bidder shall discover any provision in the plans or specifications which is in conflict with any such law, by-law, ordinance or regulation the bidder shall forthwith report it to the engineer in writing.

5. Preparation of Proposal

a) The bidder shall submit its proposal upon the forms furnished by the Owner. The bidder shall specify a lump sum price in figures, for each pay item for which a quantity is given and shall also show the products of the respective prices and quantities written in figures in the column provided for that purpose and the total amount of the proposal obtained by adding the amount of the several items. All words and figures shall be in ink or typed. If a unit price or a lump sum bid already entered by the bidder on the proposal form is to be altered it should be crossed out with ink, the new unit price or lump sum bid entered above or below it and initialed by the bidder, also with ink.

b) The bidder's proposal must be signed with ink by the individual, by one or more general partners of a partnership, by one or more members or officers of each firm representing a joint venture; by one or more officers of a corporation, by one or more members (if member-managed) or managers (if manager-managed) of a limited liability company, or by an agent of the contractor legally qualified and acceptable to the owner. If the proposal is made by an individual, his or her name and post office address must be shown, by a partnership the name and post office address of each general and limited partner must be shown; as a joint venture, the name and post office address of each venturer must be shown; by a corporation, the name of the corporation and its business address must be shown, together with the name of the state in which it is incorporated, and the names, titles and business addresses of the president, secretary and treasurer.

6. Nonconforming Proposals

Proposals will be considered nonconforming and may be rejected in the Owner's sole discretion for any of the following reasons:

- If the proposal is on a form other than that furnished by the Owner, or if the form is altered or any portion thereof is detached;
- If there are unauthorized additions, conditional or altered bids, or irregularities of any kind which may tend to make the proposal or any portion thereof incomplete, indefinite or ambiguous as to its meaning;
- If the bidder adds any provisions reserving the right to accept or reject an award, or to enter into a contract pursuant to an award; or
- If the proposal does not contain a unit price for each pay item listed except in the case of authorized alter pay items.

7. Proposal Guaranty

No proposal will be considered unless accompanied by a bid bond, surety, or similar guaranty of the types and in an amount not less than the amount indicated in the Invitation to Bid. All sureties shall be made payable to the "City of Portsmouth". If a bid bond is used by the bidder it shall be:

- In a form satisfactory to the Owner;
- With a surety company licensed, authorized to do business in, and subject to the jurisdiction of the courts of the State of New Hampshire; and
- Conditioned upon the faithful performance by the principal of the agreements contained in the sub-bid or the general bid.

In the event any irregularities are contained in the proposal guaranty, the bidder will have four business days (not counting the day of opening) to correct any irregularities. The corrected guaranty must be received by 4:00 p.m. If irregularities are not corrected to the satisfaction of the Owner, the Owner, in its sole discretion, may rejected the bid.

8. Delivery of Proposals

When sent by mail, the sealed proposal shall be addressed to the Owner at the address and in the care of the official in whose office the bids are to be received. All proposals shall be filed prior to the time and at the place specified in the invitation for bids. Proposals received after the time for opening of the bids will be returned to the bidder, unopened.

9. Withdrawal of Proposals

A bidder will be permitted to withdraw his or her proposal unopened after it has been submitted if the Owner receives a request for withdrawal in writing prior to the time specified for opening the proposals.

10. Public Opening of Proposals

Proposals will be opened and read publicly at the time and place indicated in the invitation for bids. Bidders, their authorized agents, and other interested parties are invited to be present.

11. Disqualification of Bidders

Any or all of the following reasons may be deemed by Owner in its sole discretion as being sufficient for the disqualification of a bidder and the rejection of his proposal:

- More than one proposal for the same work from an individual, firm, or corporation under the same or different name;
- Evidence of collusion among bidders;
- Failure to submit all required information requested in the bid specifications;
- If the Contractor is not listed with the New Hampshire Department of Transportation as a pre-qualified contractor under the classification of Road Construction;
- Lack of competency or of adequate machinery, plant or other equipment, as revealed by the statement of bidders qualification or otherwise;
- Uncompleted work which, in the judgment of the owner, might hinder or prevent the prompt completion of additional work if awarded;
- Failure to pay, or satisfactorily settle, all bills due for labor and materials on former contracts;
- Default or unsatisfactory performance on previous contracts; or
- Such disqualification would be in the best interests of the Owner.

12. Material Guaranty and Samples

Before any contract is awarded, the bidder may be required to furnish a complete statement of the origin, composition and manufacture of any or all materials to be used in the construction of the work, and the Owner may, in its sole discretion, reject the bid based on the contents of the statement or as a result of the failure of the bidder to submit the statement.

AWARD AND EXECUTION OF CONTRACT

1. Consideration of Proposals

After the proposals are opened and read, they will be compared on the basis of the total price for all sections of work and any such additional considerations as may be identified in the bid documents. The results of such comparisons will be immediately available to the public. In case of a discrepancy between the prices written in words and those written figures, the prices written in words shall govern. In case of a discrepancy between the total shown in the proposal and that obtained by adding the products of the quantities of items and unit bid prices, the latter shall govern.

2. Award of Contract

Within 30 calendar days after the opening of proposals, if a contract is to be awarded, the award will be made to the lowest responsible and qualified bidder whose proposal complies with all the requirements prescribed. The successful bidder will be notified, in writing, mailed to the address on his or her proposal, that his or her bid has been accepted and that the bidder has been awarded the contract.

3. Reservation of Rights

The Owner reserves the right to reject any or all proposals, to waive technicalities or to advertise for new proposals, if, in the sole discretion of the Owner, the best interest of the City of Portsmouth will be promoted thereby. The Owner further reserves the right to modify the scope of work in the event that bids exceed budgeted amounts.

The Owner reserves the right to cancel the award of any contract at any time before the execution of such contract by all parties without any liability of the Owner.

The City reserves the right, after bid opening and prior to award of the contract, to modify the amount of the work in the event that bids exceed budgeted amounts.

4. Return of Proposal Guaranty

All proposal guaranties, except those of the three lowest bidders, will be returned upon request following the opening and checking of the proposals. The proposal guaranties of the three lowest bidders will be returned within ten days following the award of the contract if requested.

5. Contract Bonds

At the time of the execution of the contract, the successful bidder shall furnish:

- A performance bond in the amount of 100 percent of the contract amount.
- Labor and materials payment bond in the sum equal to 100 percent of the contract amount.

At the time of project completion, the Owner may, in its sole discretion, permit the Contractor to substitute a maintenance bond in lieu of holding retainage for the entire guaranty period. If a bond is furnished it shall meet the following criteria:

- The bond shall be in an amount equal to 20 percent of the contract amount. Such bond shall guarantee the repair of all damage due to faulty materials or workmanship provided or done by the contractor. The guarantee shall remain in effect for a period of one year after the date of final acceptance of the job by the Owner.

Each bond shall be: (1) in a form satisfactory to the Owner; (2) with a surety company licensed and authorized to do business and with a resident agent designated for services of process in the State of New Hampshire; and (3) conditioned upon the faithful performance by the principal of the agreements contained in the original bid. All premiums for the contract bonds are to be paid by the contractor.

6. Execution and Approval of Contract

The successful bidder is required to present all contract bonds, to provide proof of insurance, and to execute the contract within 10 days following receipt of the City's notification of acceptance of the bid. No contract shall be considered as in effect until it has been fully executed by all parties.

7. Failure to Execute Contract

Failure to execute the contract and to provide acceptable bonds and proof of insurance within 10 days after notification of acceptance of bid shall be just cause for the cancellation of the award and the forfeiture of the proposal guarantee which shall become the property of the Owner, not as a penalty, but in liquidation of damages sustained. Award may then be made to the next lowest responsible bidder, or the City may exercise its reserved rights including the rejection of all bids or re-advertisement.

PROPOSAL FORM

MCDONOUGH STREET AREA PHASE 2 IMPROVEMENTS

CITY OF PORTSMOUTH, N.H.

To the City of Portsmouth, New Hampshire, herein called the Owner.

The undersigned, as Bidder, herein referred to as singular and masculine declares as follows:

1. All interested in the Bid as Principals are named herein.
2. This bid is not made jointly, or in conjunction, cooperation or collusion with any other person, firm, corporation, or other legal entity;
3. No officer, agent or employee of the Owner is directly or indirectly interested in this Bid.
4. The bidder has carefully examined the sites of the proposed work and fully informed and satisfied himself as to the conditions there existing, the character and requirements of the proposed work, the difficulties attendant upon its execution and the accuracy of all estimated quantities stated in this Bid, and the bidder has carefully read and examined the Drawings, Agreement, Specifications and other Contract Documents therein referred to and knows and understands the terms and provisions thereof;
5. The bidder understands that the quantities of work calculated in the Bid or indicated on the Drawings or in the Specifications or other Contract Documents are approximate and are subject to increase or decrease or deletion as deemed necessary by the Portsmouth City Engineer. Any such changes will not result in or be justification for any penalty or increase in contract prices; and agrees that, if the Bid is accepted the bidder will contract with the Owner, as provided in the Contract Documents, this Bid Form being part of said Contract Documents, and that the bidder will supply or perform all labor, services, plant, machinery, apparatus, appliances, tools, supplies and all other activities required by the Contract Documents in the manner and within the time therein set forth, and that the bidder will take in full payment therefore the following item prices, to wit:

PROPOSAL FORM (continued)

ITEM #	EST. QTY.	UNITS	ITEM DESCRIPTION & UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	ITEM TOTAL IN FIGURES
201.1	1	U	Remove/trim existing vegetation as necessary	\$ _____	\$ _____
206.19	20	Cy	Exploratory Excavation	\$ _____	\$ _____
206.2	1	Cy	Rock Structure Excavation	\$ _____	\$ _____
206.2A	4	Ea	Catch Basin or SMH Structure Removal	\$ _____	\$ _____
214	2900	Sy	Fine Grading (F)	\$ _____	\$ _____
304.3	280	Cy	Crushed Gravel for Sidewalks, Drives & Curb or as directed	\$ _____	\$ _____
306.21	2900	Sy	10" Reclaim, Rehandle & Remove Material as Directed (F)	\$ _____	\$ _____
403.11	700	Tons	Machine Paving	\$ _____	\$ _____
403.12	120	Tons	Hand Method Bituminous Paving	\$ _____	\$ _____
410.21	2900	Sy	Emulsified Tack Coat (F)	\$ _____	\$ _____
520	60	Cy	Class B Curb Backfill	\$ _____	\$ _____

PROPOSAL FORM (continued)

ITEM #	EST. QTY.	UNITS	ITEM DESCRIPTION & UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	ITEM TOTAL IN FIGURES
520.421	5	Cy	Class F Flowable Fill (If needed)	\$ _____	\$ _____
603.83206A	140	Lf	6" Sewer Laterals/Pipe (Incl. Fittings)	\$ _____	\$ _____
603.83206C	20	Lf	6" PVC Drain Pipe	\$ _____	\$ _____
603.83208A	260	Lf	8" PVC Sewer Pipe	\$ _____	\$ _____
603.83212	110	Lf	12" PVC Drain Pipe	\$ _____	\$ _____
603.83224	340	Lf	24" PVC Drain Pipe	\$ _____	\$ _____
604.0007	6	Ea	Polyethylene Liner for CB	\$ _____	\$ _____
604.12	1	Ea	New Catch Basins (Type B) (Includes Hood)	\$ _____	\$ _____
604.31	3	Ea	Sewer Manholes	\$ _____	\$ _____
604.5A	8	Ea	Replace Manhole/Structure Frame and Cover including adjusting for new grades (Includes Storm water hoods For CB's)	\$ _____	\$ _____
604.5B	1	Ea	Reconstruct MH Structure (Change Cover to CB)	\$ _____	\$ _____

PROPOSAL FORM (continued)

ITEM #	EST. QTY.	UNITS	ITEM DESCRIPTION & UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	ITEM TOTAL IN FIGURES
607	40	Lf	Remove and Replace 4' High Cedar Fence	\$ _____	\$ _____
608.24	6633	Sf	4" Thick Concrete Sidewalk	\$ _____	\$ _____
608.26	160	Sf	6" Concrete Sidewalk in HC Ramp Areas	\$ _____	\$ _____
608.52	8	Ea	Detectable Warning Surface Panels Armor Tile, Color: Red	\$ _____	\$ _____
609.01A	360	Lf	New Straight Vertical Granite Curb 5" Wide	\$ _____	\$ _____
609.01B	40	Lf	New Straight Vertical Granite Curb 7" Wide	\$ _____	\$ _____
609.02 A	60	Lf	New Curved Vertical Granite Curb 5" Wide	\$ _____	\$ _____
609.02C	30	Lf	New Curved Vertical Granite Curb 7" Wide	\$ _____	\$ _____
609.5A	1000	Lf	Reset Existing Curb	\$ _____	\$ _____
609.5B	120	Lf	Reset Existing Sloped Curb	\$ _____	\$ _____
611.90001	8	Ea	Reconstruct Water Gate Box Sleeves	\$ _____	\$ _____

PROPOSAL FORM (continued)

ITEM #	EST. QTY.	UNITS	ITEM DESCRIPTION & UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	ITEM TOTAL IN FIGURES
615A	4	Ea	Parking Signs (Installed)	\$ _____	\$ _____
615B	5	Ea	30" Stop/Do Not Enter Signs (Installed)	\$ _____	\$ _____
618.6	40	Hr	Uniformed Portsmouth Police Flaggers <u>Forty Five thousand seven hundred fifty</u>	<u>\$50.00</u>	<u>\$2,000.00</u>
618.7	300	Hr	Flaggers <u>Seventeen Dollars</u>	<u>\$17.00</u>	<u>\$5,100.00</u>
619.1	1	U	Maintenance of Traffic	\$ _____	\$ _____
632.0104W	560	Lf	4" White Striping (Chlorinated Rubber Paint)	\$ _____	\$ _____
632.0104Y	680	Lf	4" Yellow Striping (Chlorinated Rubber Paint)	\$ _____	\$ _____
632.0112	170	Lf	12" Crosswalk Striping (Chlorinated Rubber Pt)	\$ _____	\$ _____
641	20	Cy	Loam	\$ _____	\$ _____
645.153	5	Cy	Bark Mulch	\$ _____	\$ _____
659	3	Ea	London Plane Tree 2 1/2" Caliper	\$ _____	\$ _____
692	1	U	Mobilization	\$ _____	\$ _____

To Bidder:

The City reserves the right, after bid opening and prior to award of the contract, to modify the amount of the work in the event that bids exceed budgeted amounts and/or easements and agreements from one or more impacted property owners are not received.

It is the intention of this contract that the items listed above describe completely and thoroughly the entirety of the work as shown on the plans and as described in the specifications. All other items required to accomplish the above items are considered to be subsidiary work, unless shown as a pay item.

TOTAL FOR PROJECT AND BASIS OF AWARD

In Figures \$ _____

In Words \$ _____

The undersigned agrees that for extra work, if any, performed in accordance with the terms and provisions of the Contract Documents, the bidder will accept compensation as stipulated therein.

Date

Company

By: _____
Signature

Business Address

Title: _____

City, State, Zip Code

Telephone: _____



We certify that the Company is currently pre-qualified with the State of New Hampshire for Road Construction.

Signature

Printed Name & Title

The Bidder has received and acknowledged Addenda No. _____ through _____.
All Bids are to be submitted on this form and in a sealed envelope, plainly marked on the outside with the Bidder's name and address and the Project name as it appears at the top of the Proposal Form.

BID SECURITY BOND

(This format provided for convenience, actual Bid Bond is acceptable in lieu of, if compatible.)

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned

_____, as Principal, and

_____, as Surety, are hereby

held and firmly bound unto _____

IN THE SUM OF _____

as liquidated damages for payment of which, well and truly to be made we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

The condition of this obligation is such that whereas the Principal has submitted to the

_____ A CERTAIN Bid attached hereto and hereby made a part hereof to enter into a contract in writing, hereinafter referred to as the "AGREEMENT" and or "CONTRACT", for

NOW THEREFORE,

- (a) If said Bid shall be rejected or withdrawn as provided in the INFORMATION FOR BIDDERS attached hereto or, in the alternative,
- (b) If said Bid shall be accepted and the Principal shall duly execute and deliver the form of AGREEMENT attached hereto and shall furnish the specified bonds for the faithful performance of the AGREEMENT and/or CONTRACT and for the payment for labor and materials furnished for the performance of the AGREEMENT and or CONTRACT,

then this obligation shall be void , otherwise it shall remain in full force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder in no event shall exceed the amount of this obligation.

BID SECURITY BOND (continued)

The Surety, for value received, hereby agrees that the obligation of said surety and its bond shall be in no way impaired or affected by any extensions of the time within such BID may be accepted, and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the parties hereto have duly executed

this bond on the _____ day of _____, 20__.

(Name of Principal) L.S.

(SEAL)

BY _____

(Name of Surety)

BY _____

STATEMENT OF BIDDER'S QUALIFICATIONS

Supply with Bid

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. Add separate sheets if necessary

1. Name of Bidder
2. Permanent Main Office Address
3. Form of Entity
4. When Organized
5. Where Organized
6. How many years have you been engaged in the contracting business under your present name; also state names and dates of previous firm names, if any.
7. Contracts on hand; (schedule these, showing gross amount of each contract and the approximate anticipated dates of completion).
8. General character of work performed by your company.
9. Have you ever failed to complete any work awarded to you? ____ (no) ____ (yes). If so, where and why?
10. Have you ever defaulted on a contract?
____ (no) ____ (yes). If so, where and why?
11. Have you ever failed to complete a project in the time allotment according to the Contract Documents?
____ (no) ____ (yes). If so, where and why?
12. List the most important contracts recently executed by your company, stating approximate cost for each, and the month and year completed.
13. List your major equipment available for this contract.
14. List your key personnel such as project superintendent and foremen available for this contract.

STATEMENT OF BIDDERS QUALIFICATIONS (continued)

15. List any subcontractors whom you would expect to use for the following (unless this work is to be done by your own organization).

- a. Paving _____
- b. Concrete Flatwork _____
- c. Curbing _____

The City reserves the right to disallow any subcontractor.

16. With what banks do you do business?

a. Do you grant the Owner permission to contact this/these institutions?
____(yes) ____ (no).

b. Latest Financial Statements, certified audited if available, prepared by an independent certified public accountant, may be requested by Owner. If requested, such statements must be provided within five (5) business days or the bid proposal will be rejected. Certified Audited Statements are preferred. Internal statements may be attached only if independent statements were not prepared.

Dated at _____ this _____ day of _____, 20____.

Name of Bidder

BY _____

TITLE _____

State of _____

County of _____

_____ being duly sworn, deposes and

says that the bidder is _____ of _____
(Name of Organization)

and answers to the foregoing questions and all statements contained therein are true and correct.

Sworn to before me this _____ day of _____, 20____.

Notary of Public
My Commission expires _____

CONTRACT AGREEMENT

MCDONOUGH STREET AREA PHASE 2 IMPROVEMENTS

THIS AGREEMENT made as of the _____ day of _____ in the year **2011**, by and between the City of Portsmouth, New Hampshire (hereinafter call the Owner) and _____ (hereinafter called the Contractor),

WITNESSETH; that the Owner and Contractor, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE I - Work - The Contractor shall perform all work as specified or indicated in the Contract Documents for the completion of the Project. The Contractor shall provide, at his expense, all labor, materials, equipment and incidentals as may be necessary for the expeditious and proper execution of the Project.

ARTICLE II - ENGINEER - The City Engineer, or his authorized representative will act as engineer in connection with completion of the Project in accordance with the Contract Documents.

ARTICLE III - CONTRACT TIME - The work will commence in accordance with the Notice to Proceed. **All work shall be completed no later than July 1, 2011.**

ARTICLE IV - CONTRACT PRICE - Owner shall pay Contractor for performance of the work in accordance with the Contract Documents as shown under item prices in the Bid Proposal.

ARTICLE V - PAYMENT - Partial payments will be made in accordance with the Contract Documents. Upon final acceptance of the work and settlement of all claims, Owner shall pay the Contractor the unpaid balance of the Contract Price, subject to additions and deductions provided for in the Contract Documents.

ARTICLE VI - RETAINAGE – To insure the proper performance of this Contract, the Owner shall retain **ten percent** of the Contract Price as specified in the Contract Documents.

ARTICLE VII - LIQUIDATED DAMAGES - In event the Contractor fails to successfully execute the work within the specified contract time the Owner shall assess the Contractor liquidated damages in the amount of **two hundred dollars (\$200)** for each calendar day beyond the specified completion date for each section of work. Liquidated damages shall be deducted from the Contract Price prior to final payment of the Contractor.

CONTRACT AGREEMENT (continued)

ARTICLE VIII – CONTRACT DOCUMENTS – The Contract Documents which comprise the contract between Owner and Contractor are attached hereto and made a part hereof and consist of the following:

- 8.1 This Agreement
- 8.2 Contractor’s Bid and Bonds
- 8.3 Notice of Award, Notice to Proceed
- 8.4 Instruction to Bidders
- 8.5 General Requirements, Control of Work, Temporary Facilities, Measurement and Payment, Standard Specifications
- 8.6 Insurance Requirements
- 8.7 Standard and Technical Specifications
- 8.8 Drawings
- 8.9 Special Provisions
- 8.10 Any modifications, including change orders, duly delivered after execution of this Agreement.

ARTICLE IX – TERMINATION FOR DEFAULT – Should contractor at any time refuse, neglect, or otherwise fail to supply a sufficient number or amount of properly skilled workers, materials, or equipment, or fail in any respect to prosecute the work with promptness and diligence, or fail to perform any of its obligations set forth in the Contract, Owner may, at its election, terminate the employment of Contractor, giving notice to Contractor in writing of such election, and enter on the premises and take possession, for the purpose of completing the work included under this Agreement, of all the materials, tools and appliances belonging to Contractor, and to employ any other persons to finish the work and to provide the materials therefore at the expense of the Contractor.

ARTICLE X – INDEMNIFICATION OF OWNER – Contractor will indemnify Owner against all suits, claims, judgments, awards, loss, cost or expense (including without limitation attorneys’ fees) arising in any way out of the Contractor’s negligent performance of its obligations under this Contract. Contractor will defend all such actions with counsel satisfactory to Owner at its own expense, including attorney’s fees, and will satisfy any judgment rendered against Owner in such action.

ARTICLE XI – PERMITS – The Contractor will secure at its own expense, all permits and consents required by law as necessary to perform the work and will give all notices and pay all fees and otherwise comply with all applicable City, State, and Federal laws, ordinances, rules and regulations.

ARTICLE XII – INSURANCE – The Contractor shall secure and maintain, until acceptance of the work, insurance with limits not less than those specified in the Contract.

ARTICLE XIII – MISCELLANEOUS –

- A. Neither Owner nor Contractor shall, without the prior written consent of the other, assign, sublet or delegate, in whole or in part, any of its rights or obligations under any of the Contract Documents; and, specifically not assign any monies due, or to become due, without the prior written consent of Owner.
- B. Owner and Contractor each binds himself, his partners, successors, assigns and legal representatives, to the other party hereto in respect to all covenants, agreements and obligations contained in the Contract Documents.
- C. The Contract Documents constitute the entire Agreement between Owner and Contractor and may only be altered amended or repealed by a duly executed written instrument.
- D. The laws of the State of New Hampshire shall govern this Contract without reference to the conflict of law principles thereof.
- E. Venue for any dispute shall be the Rockingham County Superior Court unless the parties otherwise agree.

IN WITNESS WHEREOF, the parties hereunto executed this AGREEMENT the day and year first above written.

BIDDER:

BY: _____

TITLE: _____

CITY OF PORTSMOUTH, N.H.

BY: _____

John P. Bohenko

TITLE: City Manager

NOTICE OF INTENT TO AWARD

Date:

TO:

IN AS MUCH as you were the low responsible bidder for work entitled:

MCDONOUGH STREET AREA PHASE 2 IMPROVEMENTS

You are hereby notified that the City intends to award the aforesaid project to you.

Immediately take the necessary steps to execute the Contract and to provide required bonds and proof of insurance within ten (10) calendar days from the date of this Notice.

The City reserves the right to revoke this Notice if you fail to take the necessary steps to execute this Contract.

City of Portsmouth
Portsmouth, New Hampshire

Judie Belanger,
Finance Director

NOTICE TO PROCEED

DATE:

MCDONOUGH STREET AREA PHASE 2 IMPROVEMENTS

TO:

YOU ARE HEREBY NOTIFIED TO COMMENCE WORK IN ACCORDANCE
WITH THE AGREEMENT DATED _____, ON OR AFTER _____ AND ALL
WORK SHALL BE COMPLETED BY July 1, 2011.

CITY OF PORTSMOUTH, N.H.

BY: Steven F. Parkinson, PE

TITLE: Public Works Director

ACCEPTANCE OF NOTICE

RECEIPT OF THE ABOVE NOTICE TO
PROCEED IS HEREBY ACKNOWLEDGED BY

This the _____ day of _____ 20__

By: _____

Title: _____

CHANGE ORDER

Change Order Number

Date of Issuance

Owner: CITY OF PORTSMOUTH, N.H

Contractor:

You are directed to make the following changes in the
Contract Documents:

Description:

Purpose of Change Order:

Attachments: _____

CHANGE IN CONTRACT PRICE

CHANGE IN CONTRACT TIME

Original Contract Price:
\$

Original Completion Date:

Contract Price prior to this
Change Order:
\$

Contract date prior to this
Change Order:

Net Increase or Decrease of
this Change Order:
\$

Net Increase or Decrease of
this Change Order:

Contract Price with all
approved Change Orders:
\$

Contract Due date with all
approved Change Orders:

RECOMMENDED:

APPROVED:

APPROVED:

by _____

by _____

by _____

by _____

PW Director

City Finance

City Manager

Contractor

PERFORMANCE BOND

(This format provided for convenience, actual Performance Bond is acceptable in lieu, if compatible)

Bond Number _____

KNOW ALL MEN BY THESE PRESENTS

that _____ as Principal, hereinafter called Contractor, and _____ (Surety Company) a corporation organized and existing under the laws of the State of _____ and authorized to do business in the State of New Hampshire as surety, hereinafter called Surety, are held and firmly bound unto the City of Portsmouth, N.H. Obligee, hereinafter called Owner, in the amount of _____ Dollars (\$ _____), for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents. WHEREAS, Contractor has by written agreement dated _____ entered into a contract with Owner for _____ in accordance with drawings and specifications prepared by the Public Works Department, 680 Peaverly Hill Road, Portsmouth, N.H. 03801, which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Contractor shall well and faithfully do and perform the things agreed by him to be done and performed, according to the terms of said Contract and such alterations as may be made in said Contract during progress work, and shall further indemnify and save harmless the said Owner in accordance with the Contract and shall remedy without cost to the Owner any defect which may develop within one year from the time of completion and acceptance of the work.

The Surety hereby waives notice of any alteration in work or extension of time made by the Owner or any of its agents or representatives.

Whenever Contractor shall be, and declared by Owner to be, in default under the Contract, the Owner having performed Owner's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

- (1) Complete the Contract in accordance with its terms and conditions, or

LABOR AND MATERIAL PAYMENT BOND

(This format provided for convenience, actual Labor and Material Bond is acceptable in lieu, if compatible)

Bond Number _____

KNOW ALL MEN BY THESE PRESENTS:

that _____

as Principal, hereinafter called Contractor, and _____ (Surety Company) a corporation organized and existing under the laws of the State of

_____ and authorized to do business in the State of New Hampshire hereinafter called Surety, are held and firmly bound unto the City of Portsmouth, N.H. Obligee, hereinafter called Owner, for the use and benefit of claimants as herein below defined, in the

amount of _____ Dollars (\$ _____), for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal has by written agreement dated _____ entered into a

contract with Owner for _____ in accordance with drawings and specifications prepared by the Public Works Department, 680 Peverly Hill Road, Portsmouth, N.H. 03801, which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that the Principal shall promptly make payment to all claimants as hereinafter defined, for all labor and material used or reasonably required for use in the performance of the Contract and for the hire of all equipment, tools, and all other things contracted for or used in connection therewith, then this obligation shall be void, otherwise it shall remain in full force and effect, subject however, to the following conditions:

(1) A claimant is defined as one having a direct contract with the Principal or, with a subcontractor of the Principal for labor, material, equipment, or other things used or reasonably required for use in the performance of the Contract. "Labor and material" shall include but not be limited to that part of water, gas, power, light, heat, oil and gasoline, telephone service or rental of equipment applicable to the Contract.

(2) The above named Principal and Surety hereby jointly and severally agree with the Owner that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials were furnished by such a claimant, may sue on this bond for the use of such claimant, prosecute the suit by final judgment for such sum or sums as may be

LABOR AND MATERIAL PAYMENT BOND (continued)

justly due claimant, and have execution thereon. The Owner shall not be liable for the payment of any such suit or any costs or expenses of any such suit, and principal and surety shall jointly and severally indemnify, defend and hold the Owner harmless for any such suit, costs or expenses.

(3) No suit or action shall be commenced hereunder by any claimant:

(a) Unless Claimant, other than one having a direct contract with the Principal, shall have given notice to all the following:

The Principal, the Owner and the Surety above named, within six (6) calendar months after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the Principal, Owner, and Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the State of New Hampshire save that such service need not be made by a public officer.

(b) After the expiration of one (1) year following the date on which Principal ceased all work on said contract, it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof, such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

(c) Other than in a State court of competent jurisdiction in and for the county or other political subdivision of the State in which the project, or any part thereof, is situated, or in the United States District Court for the district in which the project, or any part thereof, is situated, and not elsewhere. (4) The amount of this bond may be reduced by and to the extent of any payment of payments made in good faith hereunder, inclusive of the payment by Surety of mechanics' liens which may be filed on record against said improvement, whether or not claim for the amount of such lien by presented under and against this bond.

Signed and sealed this _____ day of _____, 20____. In the presence of:

(Witness) BY: _____
(Principal) (Seal)

(Surety Company)

(Witness) BY: _____
(Title) (Seal)

LABOR AND MATERIAL PAYMENT BOND (continued)

Note:

If the Principal (Contractor) is a partnership, the Bond should be signed by each of the partners.

If the Principal (Contractor) is a corporation, the Bond should be signed in its correct corporate name by its duly authorized Officer or Officers.

If this bond is signed on behalf of the Surety by an attorney-in-fact, there should be attached to it a duly certified copy of his Power of Attorney showing his authority to sign such Bonds.

There should be executed an appropriate number of counterparts of the bond corresponding to the number of counterparts of the Agreement.

MAINTENANCE BOND

At the Owner's election, a maintenance bond may be substituted for retainage at the completion of the project. If the Owner permits a maintenance bond, it shall be in the amount of **Twenty Percent (20%)** of the contract price with a corporate surety approved by the Owner. Such bond shall be provided at the time of Contract completion and shall guarantee the repair of all damage due to faulty materials or workmanship provided or done by the Contractor. This guarantee shall remain in effect for a period of one year after the date of final acceptance of the job by the Owner.

CONTRACTOR'S AFFIDAVIT

STATE OF _____:

COUNTY OF _____:

Before me, the undersigned, a _____
(Notary Public, Justice of the Peace)

in and for said County and State personally appeared, _____
(Individual, Partner, or duly authorized representative of Corporate)

who, being duly sworn, according to law deposes and says that the cost of labor, material, and equipment and outstanding claims and indebtedness of whatever nature arising out of the performance of the Contract between

CITY OF PORTSMOUTH, NEW HAMPSHIRE

and _____
(Contractor)

of _____

Dated: _____

has been paid in full for Construction of: **McDonough Street Area 2 Improvements**

(Individual, Partner, or
duly authorized
representative of
Corporate Contractor)

Sworn to and subscribed
before me this _____ day
of _____ 20____

CONTRACTOR'S RELEASE

KNOW ALL MEN BY THESE PRESENTS that _____

(Contractor) of _____, County of _____ and State of

_____ does hereby acknowledge

that _____ (Contractor)

has on this day had, and received from the CITY OF PORTSMOUTH NEW HAMPSHIRE, final and completed payment for the Construction of:

McDonough Street Area 2 Improvements

NOW THEREFORE, the said _____

(Contractor)

for myself, my heirs, executors, and administrators) (for itself, its successors and assigns) do/does by these presents remise, release, quit-claim and forever discharge the City of Portsmouth, New Hampshire, its successors and assigns, of and from all claims and demands arising from or in connection with the said Contract dated _____, and of and from all, and all manners of action and actions, cause and causes of action and actions, suits, debts, dues, duties, sum and sums of money, accounts, reckonings, bonds, bills, specifications, covenants, contracts, agreements, promises, variances, damages, judgments, extents, executions, claims and demand, whatsoever in law of equity, or otherwise, against the City of Portsmouth, New Hampshire, its successors and assigns, which (I, my heirs, executors, or administrators) (it, its successors and assigns) ever had, now have or which (I, my heirs, executors, or administrators) (it, its successors and assigns) hereafter can shall or may have, for, upon or by reason of any matter, cause, or thing whatsoever; from the beginning of record time to the date of these presents.

IN WITNESS WHEREOF,

Contractor:

print name of witness: _____

By: _____
Its Duly Authorized _____

Dated: _____

GENERAL REQUIREMENTS

SCOPE OF WORK

1. INTENT OF CONTRACT

The intent of the Contract is to provide for the construction and completion in every detail of the work described. The Contractor shall furnish all labor, materials, equipment, tools, transportation and supplies required to complete the work in accordance with the terms of the Contract. The Contractor shall be required to conform to the intent of the plans and specifications. No extra claims shall be allowed for portions of the work not specifically addressed in the plans and specifications but required to produce a whole and complete project, such work will be considered subsidiary to the bid items.

2. INCIDENTAL WORK

Incidental work items for which separate payment is not measured includes, but is not limited to, the following items:

- a. Clearing, grubbing and stripping (unless otherwise paid for)
- b. Clean up
- c. Plugging existing sewers and manholes
- d. Signs
- e. Mobilization/Demobilization (unless otherwise paid for)
- f. Restoration of property
- g. Cooperation with other contractors, abutters and utilities.
- h. Utility crossings, (unless otherwise paid for)
- i. Minor items - such as replacement of fences, guardrails, rock wall, etc.
- j. Steel and/or wood sheeting as required.
- k. Accessories and fasteners or components required to make items paid for under unit prices or lump sum items complete and functional.

3. ALTERATION OF PLANS OR OF CHARACTER OF WORK

The Owner reserves the right, without notice to Surety, to make such alterations of the plans or of the character of the work as may be necessary or desirable to complete fully and acceptably the proposed construction; provided that such alterations do not increase or decrease the contract cost. Within these cost limits, the alterations authorized in writing by the Owner shall not impair or affect any provisions of the Contract or bond and such increases or decreases of the quantities as a result from these alterations or deletions of certain items, shall not be the basis of claim for loss or for anticipated profits by the contractor. The contractor shall perform the work as altered at the contract unit price or prices.

4. EXTRA WORK ITEMS

Extra work shall be performed by the Contractor in accordance with the specifications and as directed, and will be paid for at a price as provided in the Contract documents or if such pay items are not applicable than at a price negotiated between the contractor and the Owner or at the unit bid price. If the Owner determines that extra work is to be performed, a change order will be issued.

5. CHANGE ORDERS

The Owner reserves the right to issue a formal change order for any increase, decrease, deletion, or addition of work or any increase in contract time or price. The contractor shall be required to sign the change order and it shall be considered as part of the Contract documents.

6. FINAL CLEANING UP

Before acceptance of the work, the contractor shall remove from the site all machinery, equipment, surplus materials, rubbish, temporary buildings, barricades and signs. All parts of the work shall be left in a neat and presentable condition. On all areas used or occupied by the contractor, regardless of the contract limits, the bidder shall clean-up all sites and storage grounds.

The items prescribed herein will not be paid for separately, but shall be paid for as part of the total contract price.

7. ERRORS AND INCONSISTENCY IN CONTRACT DOCUMENTS

Any provisions in any of the Contract Documents that may be in conflict with the paragraphs in these General Requirements shall be subject to the following order of precedence for interpretation.

1. Standard Specifications for Road & Bridge Construction without regard to Section 100 "General Conditions" of those Standard Specifications will govern General Requirements.
2. Technical Specifications will govern Standard Specifications.
3. Special Provisions will govern Technical Specifications, Standard Specifications and General Requirements.

CONTROL OF WORK

1. AUTHORITY OF ENGINEER

(a) All work shall be done under supervision of the City Engineer and to his satisfaction. The City Engineer will decide all questions which may arise as to the quality and acceptability of materials furnished and work performed and as to the rate of progress of the work; all questions that may arise as to the interpretation of the plans and specifications; and all questions as to the acceptable fulfillment of the Contract by the Contractor.

(b) The City Engineer will have the authority to suspend the work wholly or in part for such periods as he may deem necessary due to the failure of the Contractor to correct conditions unsafe for workers or the general public; for failure to carry out provisions of the Contract; for failure to carry out orders; for conditions considered unsuitable for the prosecution of the work, including unfit weather; or for any other condition or reason deemed to be in the public interest. The Contractor shall not be entitled any additional payments arising out of any such suspensions.

(c) The Owner reserves the right to demand a certificate of compliance for a material or product used on the project. When the certificate of compliance is determined to be unacceptable to the City Engineer the Contractor may be required to provide engineering and testing services to guarantee that the material or product is suitable for use in the project, at its expense (see Sample of Certificate of Compliance).

2. PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPES

(a) The Contractor shall use every precaution to prevent injury or damage to wires, poles, or other property of public utilities; trees, shrubbery, crops, and fences along and adjacent to the right-of-way, all underground structures such as pipes and conduits, within or outside of the right-of-way; and the Contractor shall protect and carefully preserve all property marks until an authorized agent has witnessed or otherwise referenced their location.

(b) The Contractor shall be responsible for all damage or injury to property of any character, during the prosecution of the work, resulting from any act, omission, neglect, or misconduct in his manner or method of executing the work, or at any time due to defective work or materials, and said responsibility will not be released until the project shall have been completed and accepted.

(c) When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or as a result of the failure to perform work by the Contractor, the Contractor shall restore, at its own expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing rebuilding, or otherwise restoring as may be directed, or the Contractor shall make good such damage or injury in an acceptable manner.

(d) The Contractor shall paint with tree paint all scars made on fruit or ornamental trees by equipment, construction operations, or the removal of limbs larger than one inch in diameter. Damaged trees must be replaced if so determined by the City Arborist, in his or her sole discretion.

(e) If the Contractor fails to repair, rebuild or otherwise restore such property as may be deemed necessary, the Owner, after 48 hours notice, may proceed to do so, and the cost thereof may be deducted from any money due or which may become due the Contractor under the contract.

(f) It is the intent of the Parties that the Contractor preserve, to as great an extent as possible, the natural features of the site.

CONTROL OF WORK (continued)

3. MAINTENANCE DURING CONSTRUCTION

The Contractor shall maintain the work during construction and until the project is accepted. This maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and workers to ensure that the structure is kept in satisfactory conditions at all times.

4. SAFETY PRECAUTIONS

Upon commencement of work, the Contractor shall be responsible for initiating, maintaining and supervising all safety precautions necessary to ensure the safety of employees on the site, other persons who may be affected thereby, including the public, and other property at the site or adjacent thereto.

5. PERMITS

It will be the responsibility of the Contractor to obtain all permits required for the operation of equipment in, or on, all city streets and public ways.

The City has applied for a wetland permit from NHDES wetlands bureau allowing work within 100' of the highest observable tide line. As of this date, the City has not received final approval for the work. Upon the City's receipt of the approved permit, the Contractor will be furnished with a copy of the permit and the Contractor will be required to abide by all conditions of that permit.

The City has received its release of funds from the US Housing and Urban Development in accordance with the National Environmental Policy Act of 1969 (as amended).

6. BARRICADES, WARNING SIGNS AND TRAFFIC OFFICERS

(a) The Contractor shall provide, erect and maintain all necessary barricades, suitable and sufficient lights, danger signals, signs and other traffic control devices, and shall take all necessary precautions for the protection of the work and safety of the public. Roadway closed to traffic shall be protected by effective barricades. Obstructions shall be illuminated during hours of darkness. Suitable warning signs shall be provided to control and direct traffic in a proper manner, as approved by the engineer.

(b) The Contractor will be held responsible for all damage to the work from traffic, pedestrians, animals or any other cause due to lack of adequate controlling devices.

(c) The Contractor shall provide such police officers as the City Engineer deems necessary for the direction and control of traffic within the site of project.

The work prescribed herein will not be paid for separately but will be paid for as part of the Contract Price unless specifically appearing as a bid item.

TEMPORARY FACILITIES

1. STORAGE FACILITIES

(a) The Contractor shall not store materials or equipment in a public right-of-way beyond the needs of one working day. Equipment and materials shall be stored in an approved location.

(b) The Contractor shall protect all stored materials from damage by weather or accident and shall insure adequate drainage at and about the storage location.

(c) Prior to final acceptance of the work all temporary storage facilities and surplus stored materials shall be removed from the site.

2. SANITARY FACILITIES

(a) The Contractor shall provide for toilet facilities for the use of the workers employed on the work.

(b) Temporary toilet facilities may be installed provided that the installation and maintenance conform with all State and local laws, codes, regulations and ordinances governing such work. They shall be properly lit and ventilated, and shall be kept clean at all times.

(c) Prior to final acceptance of the work all temporary toilet facilities shall be removed from the site.

3. TEMPORARY WATER

The Contractor shall make all arrangements with the local water department for obtaining water connections to provide the water necessary for construction operations and shall pay all costs.

4. TEMPORARY ELECTRICITY

The Contractor shall make all arrangements with the Public Service Company for obtaining electrical connections to provide the electrical power necessary for construction operations and security lighting and shall pay all electrical connection and power costs.

The Contractor shall be responsible with obtaining an electrical permit from the City Electrical Inspector.

INSURANCE REQUIREMENTS

Insurance shall be in such form as will protect the Contractor from all claims and liabilities for damages for bodily injury, including accidental death, and for property damage, which may arise from operations under this contract whether such operation by himself or by anyone directly or indirectly employed by him.

AMOUNT OF INSURANCE

- A) Comprehensive General Liability:
Bodily injury or Property Damage - \$2,000,000
Per occurrence and general aggregate
- B) Automobile and Truck Liability:
Bodily Injury or Property Damage - \$2,000,000
Per occurrence and general aggregate

Coverage amounts may be met with excess policies

Additionally, the Contractor shall purchase and maintain the following types of insurance:

- A) Full Workers Comprehensive Insurance coverage for all people employed by the Contractor to perform work on this project. This insurance shall at a minimum meet the requirements of the most current laws of the State of New Hampshire.
- B) Contractual Liability Insurance coverage in the amounts specified above under Comprehensive General Liability.
- C) Product and Completed Operations coverage to be included in the amounts specified above under Comprehensive General Liability.
- D) Installation Floater in an amount sufficient to cover the cost of the pipe work.

ADDITIONAL INSURED

All liability policies (including any excess policies used to meet coverage requirements) shall include the City of Portsmouth, New Hampshire as named Additional Insureds.

- 1) The contractor's insurance shall be primary in the event of a loss.
- 2) City of Portsmouth shall be listed as a Certificate Holder. The City shall be identified as follows:

City of Portsmouth
Attn: Legal Department
1 Junkins Avenue
Portsmouth, NH 03801

MEASUREMENT AND PAYMENT

1. MEASUREMENT OF QUANTITIES

- (a) All work completed under the contract will be measured according to the United States standard measure.
- (b) The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice. Unless otherwise stated all quantities measured for payment shall be computed or adjusted for "in place" conditions.
- (c) Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures having an area of 9 square feet or less. Unless otherwise specified, transverse measurements for area computations will be the dimensions shown on the plans or ordered in writing.
- (d) Structures will be measured according to lines shown on the plans or as ordered unless otherwise provided for elsewhere in the specifications.
- (e) In computing volumes of excavation, embankment, and borrow, the average end area method will be used. Where it is impracticable to measure by the cross-section method, acceptable methods involving three-dimensional measurement may be used. When measurement of borrow in vehicles is permitted, the quantity will be determined as 80 percent of the loose volume.
- (f) In computing volumes of concrete, stone and masonry, the prismatic method will be used. The term "ton" will mean the short ton consisting of 2,000 pounds avoirdupois.
- (g) Except as specified below, all materials that are measured or proportioned by weight shall be weighed on scales which the Contractor has had sealed by the State or by a repairman registered by the Commissioner of Agriculture. All weighing shall be performed in a manner prescribed under the Rules and Regulations of the Bureau of Weights and Measures of the New Hampshire Department of Agriculture.
- (h) Weighing of materials on scales located outside New Hampshire will be permitted for materials produced or stored outside the state, when requested by the Contractor and approved. Out-of-state weighing in order to be approved, must be performed by a licensed public weigh master or a person of equal authority in the state concerned on scales accepted in the concerned state.
- (i) Each truck used to haul material being paid for by weight shall bear a plainly legible identification mark, and if required, shall be weighed empty daily at such times as directed.
- (j) When material is weighed, the individual weight slips, which shall be furnished by the Contractor, for trucks, trailers, or distributors, shall show the following information: the date; the project; the material or commodity; the dealer or vendor; the Contractor or Subcontractor; the location of the scales; the vehicle registration number or other approved legible identification mark; the tare and net weights, with gross weights when applicable; and the weigher's signature or his signed initials.

MEASUREMENT AND PAYMENT (continued)

(k) The right is reserved to weight any truck, trailer, or distributor, at locations designated, before and after making deliveries to the project.

(l) Bituminous materials will be measured by the gallon or ton.

(m) When material is specified to be measured by the cubic yard but measurement by weight is approved, such material may be weighed and the weight converted to cubic yards for payment purposes. Necessary conversion factors will be determined by the Owner.

(n) The term "lump sum" when used as an item of payment will mean complete payment for the work described in the item.

(o) When a complete structure or structural unit (in effect, "lump sum" work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories, so as to provide the item complete and functional. Except as may be otherwise provided, partial payments for lump sum items will be made approximately in proportion to the amount of the work completed on those items.

(p) Material wasted without authority will not be included in the final estimate.

2. SCOPE OF PAYMENT

(a) The Contractor shall receive and accept compensation provided for in the contract as full payment for furnishing all materials and for performing all work under the contract in a complete and acceptable manner and for all risk, loss, damage or expense of whatever character arising out of the nature of the work or the prosecution thereof.

(b) The Contractor shall be liable to the Owner for failure to repair, correct, renew or replace, at his own expense, all damage due or attributable to defects or imperfections in the construction which defects or imperfections may be discovered before or at the time of the final inspection and acceptance of the work.

(c) No monies, payable under the contract or any part thereof, except the first estimate, shall become due or payable if the Owner so elects, until the Contractor shall satisfy the Owner that the Contractor has fully settled or paid all labor performed or furnished for all equipment hired, including trucks, for all materials used, and for fuels, lubricants, power tools, hardware and supplies purchased by the Contractor and used in carrying out said contract and for labor and parts furnished upon the order of said Contractor for the repair of equipment used in carrying out said contract; and the Owner, if he so elects, may pay any and all such bills, in whole or in part, and deduct the amount of amounts so paid from any partial or final estimate, excepting the first estimate.

MEASUREMENT AND PAYMENT (continued)

3. COMPENSATION FOR ALTERED QUANTITIES

(a) Except as provided for under the particular contract item, when the accepted quantities of work vary from the quantities in the bid schedule the Contractor shall accept as payment in full, so far as contract items are concerned, at the original contract unit prices for the accepted quantities of work done. No allowance will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor resulting either directly from such alterations or indirectly from unbalanced allocation among the contract items of overhead expense on the part of the Bidder and subsequent loss of expected reimbursements therefore or from any other cause.

(b) Extra work performed will be paid for at the contract bid prices or at the price negotiated between the Owner and the Contractor if the item was not bid upon. If no agreement can be negotiated, the Contractor will accept as payment for extra work, cost plus 15% (overhead and profit). Costs shall be substantiated by invoices and certified payroll.

4. PARTIAL PAYMENTS

Partial payments will be made on a monthly basis during the contract period. From the total amount ascertained as payable, an amount equivalent to ten percent (10 %) of the whole will be deducted and retained by the Owner until such time as the work receives final acceptance.

5. FINAL ACCEPTANCE

Upon due notice from the Contractor of presumptive completion of the entire project, the City Engineer will make an inspection. If all construction provided for and contemplated by the contract is found complete to his satisfaction, this inspection shall constitute the final inspection and the City Engineer will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of the final inspection.

If, however, the inspection discloses any work in whole or in part, as being unsatisfactory, the City Engineer will give the Contractor the necessary instructions for correction of such work, and the Contractor shall immediately comply with and execute such instructions. Upon correction of the work, another inspection will be made which shall constitute the final inspection provided the work has been satisfactorily completed. In such event, the City Engineer will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of final inspection.

MEASUREMENT AND PAYMENT (continued)

6. ACCEPTANCE AND FINAL PAYMENT

(a) When the project has been accepted and upon submission by the Contractor of all required reports, completed forms and certifications, the Owner will review the final estimate of the quantities of the various classes of work performed. The Contractor may be required to certify that all bills for labor and material used under this contract have been paid.

(b) The Contractor shall file with the Owner any claim that the Contractor may have regarding the final estimate at the same time the Contractor submits the final estimate. Failure to do so shall be a waiver of all such claims and shall be considered as acceptance of the final estimate. From the total amount ascertained as payable, an amount equal to ten percent (10%) of the whole will be deducted and retained by the Owner for the guaranty period. This retainage may be waived, at the discretion of the City, provided the required Maintenance Bond has been posted. After approval of the final estimate by the Owner, the Contractor will be paid the entire sum found to be due after deducting all previous payments and all amounts to be retained or deducted under the provisions of the contract.

(c) All prior partial estimates and payments shall be subject to correction in the final estimate and payment.

7. GENERAL GUARANTY AND WARRANTY OF TITLE

(a) Neither the final certification of payment nor any provision in the contract nor partial or entire use of the improvements embraced in this Contract by the Owner or the public shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express or implied warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work resulting therefrom which shall appear within a period of twelve (12) months from the date of final acceptance of the work. The Owner will give notice of defective materials and work with reasonable promptness.

(b) No material, supplies or equipment to be installed or furnished under this Contract shall be purchased subject to any chattel mortgage or under a conditional sale, lease purchase or other agreement by which an interest therein or in any part thereof is retained by the Seller or supplier. The Contractor shall warrant good title to all materials, supplies and equipment installed or incorporated in the work and upon completion of all work, shall deliver the same together with all improvements and appurtenances constructed or placed thereon by him to the Owner free from any claims, liens or charges. Neither the Contractor nor any person, firm or corporation furnishing any material or labor for any work covered by this Contract shall have the right to a lien upon any improvements or appurtenances thereon.

Nothing contained in this paragraph, however, shall defeat or impair the right of persons furnishing materials or labor to recover under any bond given by the Contractor for their protection or any rights under any law permitting such persons to look to funds due the Contractor in the hands of the Owner. The provisions of this paragraph shall be inserted in all subcontractors and material contracts and notice of its provisions shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

MEASUREMENT AND PAYMENT (continued)

8. NO WAIVER OF LEGAL RIGHTS

(a) Upon completion of the work, the Owner will expeditiously make final inspection and notify the Contractor of acceptance. Such final acceptance, however, shall not preclude or stop the Owner from correcting any measurement, estimate, or certificate made before or after completion of the work, nor shall the Owner be precluded or be stopped from recovering from the Contractor or his Surety, or both, such overpayment as it may sustain by failure on the part of the Contractor to fulfill his obligations under the contract. A waiver on the part of the Owner of any breach of any part of the contract shall not be held to be a waiver of any other or subsequent breach.

(b) The Contractor, without prejudice to the Contract shall be liable to the terms of the Contract, shall be liable to the Owner for latent defects, fraud or such gross mistakes as may amount to fraud, and as regards the Owner's right under any warranty or guaranty.

9. TERMINATION OF CONTRACTOR'S RESPONSIBILITY

Whenever the improvement provided for by the Contract shall have been completely performed on the part of the Contractor and all parts of the work have been released from further obligations except as set forth in his bond and as provided in Section 8 above.

STANDARD SPECIFICATIONS

The Standard Specifications for Road and Bridge Construction of the State of New Hampshire Department of Transportation and any Addenda shall apply but without regard to Section 100 “General Conditions” of those Standard Specifications

SHOP DRAWINGS

Shop Drawings for this project shall be submitted under the following conditions:

1. The Contractor shall submit working and detail drawings, well in advance of the work, to the City Engineer & Building Inspector for review.
2. The Contractor's drawings shall consist of shop detail, erection and other working plans showing dimensions, sizes and quality of material, details and other information necessary for the complete fabrication and erection of the pertinent work.
3. The Contractor shall submit three (3) sets of drawings to the City Engineer.
4. Prior to the approval of the drawings, any work done or materials ordered for the work involved shall be at the Contractor's risk.
5. One (1) set of the drawings will be returned to the Contractor approved or marked with corrections to be made. After approval has been given, the Contractor shall supply the City Engineer with two sets of the revised detail working drawings.
6. The City Engineer's approval of the Contractor's working drawings will not relieve the Contractor from responsibility for errors in dimensions or for incorrect fabrication processes, or from responsibility to complete the contract work.

TECHNICAL SPECIFICATIONS

As noted above, the Standard Technical Specifications for this project are the Standard Specifications for Road and Bridge Construction of the State of New Hampshire Department of Transportation and any Addenda shall apply. Additional Technical Specifications and Special Provisions for this project are attached.

AMENDMENT to SECTION 603

PIPE & PIPE FITTINGS - GENERAL

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Work Included: Furnish, install, support and test pipe and pipe fittings of the type(s) and size(s) and in the location(s) shown on the Drawings and as specified herein.

1.2 SUBMITTALS TO THE ENGINEER

- A. Submit shop drawings in accordance with the General Conditions of the Construction Contract.
- B. If requested by the Engineer, submit manufacturer's "Certification of Conformance" that pipe and pipe fittings meet or exceed the requirements of these Specifications.
- C. Submit other documents as specified in the appropriate Sections of this Division.

1.3 DELIVERY, STORAGE AND HANDLING

- A. Exercise care during loading, transporting, unloading, and handling to prevent damage of any nature to interior and exterior surfaces of pipe and fittings.
- B. Do not drop pipe and fittings.
- C. Store materials on the project site in enclosures or under protective coverings in accordance with manufacturer's recommendations and as directed by the Engineer.
- D. Assure that materials are kept clean and dry.
- E. Do not store materials directly on the ground.
- F. Follow manufacturer's specific instructions, recommendations and requirements.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Marking Tape
 - 1. Shall be coded in accordance with the NPWA Standards.
 - 2. Shall be indelibly marked indicating the type of utility it is placed over.
 - 3. Shall be three (3) inches wide Terra Tape Sentry Line 1350 (Detachable) by Reef Industries, Houston, TX, or approved equal.
- B. Pipe Lubricant or glue
 - 1. Use only lubricants or glues suitable for the type of pipe and application.
 - 2. For potable water pipe use only lubricants or glues clearly marked "For Use with Potable Water".

PART 3 - EXECUTION

3.1 INSPECTION

- A. Provide all labor and equipment necessary to assist the Engineer to inspect pipe, fittings, gaskets, and other materials.
 - 1. This shall include all air quality testing equipment, harnesses and manlifts necessary to comply with the appropriate OSHA regulation.
 - 2. The Engineer shall comply with the Contractor's regulations and policies regarding below grade or confined space entry.
- B. Carefully inspect all materials at the time of delivery and just prior to installation.
- C. Carefully inspect all pipe and fittings for:
 - 1. Defects and damage.
 - 2. Deviations beyond allowable tolerances for joint dimensions.
 - 3. Removal of debris and foreign matter.
- D. Examine areas and structures to receive piping for:
 - 1. Defects, such as weak structural components, that adversely affect the execution and quality of work.
 - 2. Deviations beyond allowable tolerances for pipe clearances.
- E. All materials and methods not meeting the requirements of these Specifications shall be rejected.
- F. Immediately remove all rejected materials from the project site.
- G. Start work only when conditions are corrected to the satisfaction of the Engineer.

3.2 INSTALLATION

- A. General:
 - 1. Install all pipe and fittings in strict accordance with the manufacturer's instructions and recommendations and as instructed by the Engineer.
 - 2. Install all pipes and fittings in accordance with the lines and grades shown on the Drawings and as required for a complete installation.
 - 3. Install adapters, approved by the Engineer, when connecting pipes constructed from different materials.
 - 4. When applicable, support all piping not being installed in trenches in accordance with the "Pipe Hangers & Supports" Section of these Specifications.
- B. Installation and Trenches:
 - 1. Firmly support the pipe and fittings on bedding material as shown on the Drawings and as specified in the appropriate Sections of these Specifications.
 - a. Where, in the opinion of the Engineers, the subgrade material is unsuitable to support the pipe, over-excavate the unsuitable material and replace the same with suitable gravel or granular borrow.
 - b. If the subgrade material encountered consists of saturated clays or silts, the Engineer may direct the installation of the bedding material and pipe inside a construction fabric wrap as shown on the Drawings.
 - 2. Do not permanently support the pipe or fittings on saddles, blocking stones, or any material which does not provide firm and uniform bearing along the outside length of the pipe.
 - 3. Thoroughly compact the material under the pipe to obtain a substantial unyielding bed shaped to fully support the pipe.

4. Excavate suitable holes for the joints so that only the barrel of the pipe receives bearing pressure from the supporting material after placement.
 5. Lay each pipe length so it forms a close joint with the adjoining length and bring inverts to the required grade.
 6. Set the pipe true to line and grade. Use a transit for line. Use a laser beam aligner for grade.
 7. Do not drive the pipe down to grade by striking it with a shovel handle, timber, rammer or any other unyielding object.
 8. Make all pipe joints watertight and no sand, silt, clay or soil of any description entering the pipeline at the joints.
 9. Immediately after making a joint, fill the holes for the joint with bedding material, and compact.
 10. When each pipe length has been properly set, place and compact enough of the bedding material between the pipe and the sides of the trench to hold the pipe in correct alignment.
 11. After filling the sides of the trench, place and lightly tamp bedding material to complete the bedding as shown on the Drawings.
 12. Take all necessary precautions to prevent flotation of the pipe in the trench.
 13. Where there is evidence of water or soil entering the pipeline, repair the defects to the satisfaction of the Engineer.
- C. Temporary Plugs:
1. When pipe installation work in trenches is not in progress, close open ends of the pipe with temporary watertight plugs.
 2. If water is in the trench when work is resumed, do not remove plugs until all danger of water entering the pipe is eliminated.
 3. Do not use the pipe lines as conductors for trench drainage during construction.
- D. Protection of Water Supplies:
1. There shall be no physical connection between a public or private potable water supply system and a sewer.
 2. Sewer shall be a minimum of ten feet horizontally unless shown otherwise on the drawings.
 3. Whenever sewers must cross water mains, the sewer shall be constructed as follows (unless shown otherwise on the Drawings):
 - a. Sewer pipe shall be class 52 ductile iron or PVC pressure rated pipe (DR-25 min. or SDR-32.5 min.) for a minimum distance of 9 feet each side of the crossing.
 - b. Joints shall be mechanical type water pressure rated with zero leakage when tested at 25 pounds per square inch for gravity sewers and 1-1/2 times working pressure for force mains, and joints shall not be located within 9 feet of the crossing.
 - c. Vertical separation of sewer and water main shall not be less than 18".

3.3 CLEANING AND TESTING

- A. Cleaning and Testing Piping - General:

1. Thoroughly clean all piping prior to testing. Remove all dirt, dust, oil, grease and other foreign material. Exercise care while cleaning to avoid damage to linings and coatings.
 2. When the installation is complete, test all pipelines, including service laterals, in the presence of the Engineer and the plumbing or building inspector in accordance with the requirements of the local and state plumbing codes and the appropriate Sections of these Specifications, at no additional cost to the Owner.
 3. Equipment: Supply all labor, equipment, materials, gages, and pumps required to conduct the tests.
 4. Retesting: Perform all retesting required due to failure at no additional cost to the Owner and to the complete satisfaction of the Engineer.
- B. Outside Potable Water Piping:
1. Pressure Test:
 - a. Perform testing in accordance with Section 5 of AWWA Standard C600.
 - b. Pressure and leakage tests are required.
 2. Chlorination of Pipelines:
 - a. Chlorinate all new potable water lines in accordance with the procedure outlined in AWWA C600, latest revision.
 - b. Locate chlorination and sampling points as approved by the Engineer.
 - c. Use a dosage which will produce not less than 10.0 ppm chlorine residual after a contact period of not less than 24 hours.
 - d. During the chlorination period, exercise care to prevent the contamination of water in existing water mains.
 - e. After chlorination, flush the piping with clean potable water until there is only background chlorine residual.
 - f. Chlorinated effluent shall be dechlorinated prior to release to surface waters.
 3. Bacteriological Testing:
 - a. Test all new potable water lines for total Coliform bacteria at no additional cost to the Owner.
 - b. The length of pipe to be tested and the time of the test shall be as approved by the Engineer.
 - c. The Engineer will observe the taking of samples.
 - d. Have all samples tested by a laboratory approved by the State and submit test results to the Engineer.
 - e. Any segment of a potable water line shall be considered unsuitable for service if a Coliform bacteria count is obtained from that sample.
 - f. Re-disinfect all segments of piping considered unsuitable and retest. Continue to disinfect and test until no Coliform bacteria are present.
 - g. Place piping into service when it has been successfully tested for pressure, leakage and total Coliform bacteria.
 4. Services:

- a. After a new main has been energized and the new service has been completed, it shall be the responsibility of the Contractor to confirm with the property owner that all water systems in the building are working properly. This will include removing any air from the water service and confirmation with the property owner that interior plumbing is functioning properly.
- C. Building Interior Water Lines (When Applicable):
1. Clean and test in accordance with the "Plumbing General" Section in these Specifications.
- D. Sewer Lines:
1. Outside Sewer Lines: Test with a low pressure air test, a visual inspection, and for PVC or other flexible piping, test with a deflectometer after suitable settling time has elapsed..
 2. Building Interior Sewer System: Clean and test in accordance with the "Plumbing General" Section in these Specifications.
- E. All Other Piping Systems:
1. Pressure Test:
 - a. Perform a pressure test for all other piping systems at 1-1/2 times maximum system pressure, or at the maximum working pressure of the piping system, or at a pressure indicated in the appropriate Sections of this Specification.
 - b. Tests shall be hydrostatic water, or air pressure as specified or as approved by the Engineer.
 2. Cleaning: Perform all specialized cleaning as specified or required by system.

END OF SECTION

AMENDMENT to SECTION 604 SEWER & DRAINAGE MANHOLES

MANHOLES, COVERS AND FRAMES (NH)

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Work Included: Furnish and install manholes, cast iron frames and covers in conformance with the dimensions, elevations, and locations shown on the Drawings and as specified herein.

1.2 QUALITY ASSURANCE

- A. Construct all manholes in conformance with the New Hampshire Department of Environmental Services - Water Division- Standards of Design and Construction for Sewerage and Wastewater Treatment Facilities.
- B. Construct all manholes of a quality to withstand loads of 8 tons (H-20 loading) without failure for a period of time in excess of 25 years.
- C. Construct all manholes of a quality to prevent leakage in excess of 1 gallon per day per vertical foot of manhole.
- D. Construct all manholes throughout the entire project from the same materials unless otherwise shown on the Drawings.
- E. All castings shall be at least Class 30 conforming to ASTM Standard Specifications for Gray Iron Casting, Designation A40.
- F. All essential details of design shall be as shown on the Drawings.
- G. Frames and covers shall be New Hampshire Standard.
- H. Masonry: See specification Section 04201.
- I. Waterproofing: Shall be with a product with demonstrated five (5) years successful use in similar applications.

1.3 SUBMITTALS TO THE ENGINEER

- A. Submit shop drawings in accordance with the General Conditions of the Construction Contract.
- B. A description of all methods of jointing.
- C. All Certificates of Compliance.
- D. Provide Fabrication Schedule that shows:
 - a. Orientation and elevation of opening.
 - b. Section dimensions and assembly order.

1.4 SUPPLEMENTAL INFORMATION

- A. For work performed in the City of Portsmouth, New Hampshire the Contractor shall provide certification that all frames and covers were manufactured in the United States.

PART 2 - PRODUCTS

2.1 PRECAST MANHOLE SECTIONS

A General

1. Risers and tops shall be precast reinforced or non-reinforced concrete, or cast-in-place reinforced or non-reinforced concrete.
2. Manhole bases shall be monolithic to a point 6 inches above the crown of the incoming pipe and shall be constructed of reinforced or non-reinforced concrete.
3. Use concrete that conforms to the requirements of Class A concrete in Section 520 of the N.H.D.O.T. Standard Specifications for manhole bases and cast-in-place manholes.
4. Use reinforcing steel for cast-in-place concrete that conforms to the requirements of the N.H.D.O.T. Standard Specifications for Billet-Steel Bars or Welded Steel Wire Fabric.
5. Construct pipe to manhole joints that are approved by the New Hampshire Department of Environmental Services – Water Division. In general, use approved non-shrinking mortar or elastomeric or mastic like sealants to insure these joints are watertight.
6. Do not install manhole steps unless shown on the Drawings.
7. All sewer manhole covers shall be 30 inches in diameter unless shown otherwise on the Drawings and have the letter "S" or the word "SEWER" in 3-inch letters cast into the top surface.
8. All drain manhole covers shall be 30 inches in diameter unless shown otherwise on the Drawings and have the letter "D" or the word "DRAIN" in 3-inch letters cast into the top surface.
9. All castings shall be of good quality, strong, tough, even-grained cast iron, smooth, free from scale, lumps, blisters, sandholes, and defects of every nature which would render them unfit for the service for which they are intended.
10. Contact surfaces of covers and frame seats shall be machined at the foundry before shipment to prevent rocking of covers in any orientation.
11. All castings shall be thoroughly cleaned and subject to a careful hammer inspection.
12. Prior to being shipped from the foundry, castings shall be sandblasted.
13. Repair all coatings that have been damaged in transit or handling to the satisfaction of the Engineer.

B. Openings:

1. Provide openings in the risers to receive pipes entering the manhole.
2. Make openings at the manufacturing plant.
3. Size: To provide a uniform annular space between the outside wall of pipe and riser.
4. Location: To permit setting of the entering pipes at the correct elevations.
5. Openings shall have a flexible watertight union between pipe and the manhole base.
 - a. Cast into the manhole base and sized to the type of pipe being used.

b. Type of flexible joint being used shall be approved by the Engineer. Install materials according to the Manufacturer's instructions.

1. Lock Joint Flexible Manhole Sleeve made by Interpace Corporation.
2. Kor N Seal made by National Pollution Control System, Inc.
3. Link Seal by Thunderline Corporation (Wayne, MI).
4. Approved Equal.

C. Joints:

1. Joint gaskets to be flexible self-seating butyl rubber joint sealant installed according to manufacturer's recommendations. For cold weather applications, use adhesive with joint sealant as recommended by manufacturer.

Acceptable Materials:

- a. Kent-Seal No. 2
 - b. Ram-Nek
 - c. Or equivalent.
2. Joints between precast sections shall conform to related standards and manufacturer's instructions.
 3. All manholes greater than 6 ft. diameter and all manholes used as wet wells, valve pits and other dry-pit type structures shall be installed with exterior joint collars. The joint collar shall be installed according to the manufacturer's instructions. Acceptable materials:
 - a. MacWrap exterior joint sealer as manufactured by Mar-Mac Manufacturing Company.
 - b. Or equivalent.

D. Waterproofing:

1. The exterior surface of all manholes shall be given two coats of bituminous waterproofing material.
2. The coating shall be applied after the manholes have cured adequately and can be applied by brush or spray in accordance with the manufacturer's written instruction.
3. Sufficient time shall be allowed between coats to permit sufficient drying so that the application of the second coat has no effect on the first coat.

2.2 FRAMES AND COVERS

A. Standard Units:

1. Shall be "New Hampshire Standard".
2. Made of cast iron conforming to ASTM A48-76, Class 30 minimum.
3. Have machined bearing surfaces to prevent rocking.
4. Castings shall be smooth with no sharp edges.
5. Constructed to support an HS-20 wheel loading.
6. Dimensions and Style shall conform to the Drawings; Standard castings differing in non-essential details are subject to approval by the Engineer:
 - a. Covers - solid 3-inch letters diamond pattern.
 - b. Frame - 30-inch diameter clear opening, with flange bracing ribs.
7. Minimum weight of frame and cover shall be 430 lbs.

8. For project in Portsmouth, NH, provide certification that Frames and Cover are "Made in USA".
- B. Hinged Manhole Covers
1. Hinged manhole covers shall be manufactured by PAMREX or approved equal.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Manhole Bases:
1. Place bases on a 6-inch layer of compacted bedding consisting of crushed stone and/or natural stone graded to the following specifications:
 - a. 100 percent passing a 1-inch screen.
 - b. 90 to 100 percent passing a 3/4-inch screen.
 - c. 20 to 55 percent passing a 3/8-inch screen.
 - d. 0 to 10 percent passing a number 4 sieve.
 - e. 0 to 5 percent passing a number 8 sieve.
 - f. Equivalent to Standard Stone Size Number 67, Section 703 of N.H.D.O.T. Standard Specifications.
 2. Properly dewater the excavation while placing the bedding material and placing the structure or concrete.
 3. Use waterstops at the horizontal joint of cast-in-place manholes.
- B. Construct inlet and outlet stubs as shown on the Drawings.
- C. Invert Channels:
1. Construct smooth and semicircular in shape conforming to the inside of the adjacent sewer section.
 2. Make changes in direction of flow with smooth curves having a radius as large as permitted by the size of the manhole.
 3. Stop the pipes at the inside face of the manhole where changes of direction occur.
 4. Form invert channels as shown on the Drawings.
 5. Slope the floor of the manhole outside the flow channel as shown on the Drawings or as directed by the Engineer.
- D. Precast Risers and Tops:
1. Use the appropriate combinations of risers and top lengths.
 2. Seal joints with an approved type mastic as shown on the Drawings.
 3. Test the manhole as soon as practical after installation.
 4. Perform jointing in accordance with the manufacturer's recommendations and as approved by the Engineer.
 5. Install risers and tops level and plumb.
 6. Do not permit water to rise over newly made joints until after inspection by the Engineer.
 7. Make all joints watertight.
 8. Solidly fill annular spaces around pipes entering the manholes with non-shrink mortar or as otherwise shown on the Drawings.

9. When necessary, core openings carefully to prevent damage to risers and tops. Replace all damaged risers and tops at no additional cost to the Owner.
 10. Cutting opening shall not be allowed without the expressed written permission of the Engineer.
- E. Cast-In-Place Manholes:
1. Place a special plastic waterstop in the joint between the base and the sides of all manholes.
 2. Obtain the Engineer's approval of the type of waterstop and the installation.
 3. Cast all pipes entering the manholes in accordance with pipe manufacture recommendations.
- F. Drop Manholes:
1. No free drop shall be permitted at the pipe inlet.
 2. Where the vertical distance between inlet and outlet pipe inverts exceeds 24 inches, construct a drop manhole as shown on the Drawings.
- G. Adjustment to Grade: If necessary, adjust tops of manholes to grade, a maximum of 12 inches, with brick masonry.
- H. Set manhole frames with the tops conforming accurately to the grade of the pavement or finished ground surface or as shown on the drawings.
- I. Set frames concentric with the top of the masonry and in a full bed of mortar so that the space between the top of the manhole masonry and the bottom flange at the frame shall be completely filled and made watertight.
- J. Place a thick ring of mortar extending to the outer edge of the masonry all around and on the top of the bottom flange.
- K. Finish the mortar so that it will be smooth and have a slight slope to shed water away from the frame.
- L. When the work on each manhole is complete, clean the frame seat and set the cover in place.

3.2 LEAKAGE TESTS

- A. General:
1. Perform vacuum tests on all manholes.
 2. Exfiltration tests on manholes shall be performed in case of vacuum test failure or may be submitted as a substitution with approval by the Engineer.
 4. The Engineer shall observe tests.
 5. Repairs to manholes found to leak by any test method shall be performed both inside and outside the structure by a method approved by the Engineer.
- B. Preparation:
1. After manholes have been assembled in place, fill and point all lifting holes.
 2. If the manhole is to be backfilled before testing, fill those exterior joints within 6 feet of the ground surface with an approved non-shrink mortar.
 3. Test all manholes with pipes and or stubs installed. Testing with through pipes to be removed and replaces is not acceptable.
 4. Manholes in which the pipe to manhole connection is disassembled after testing shall be retested at the Contractors expense.

5. Make the tests prior to placing the shelves and inverts and before filling and pointing the horizontal joints below the 6-foot depth line.
 6. Suitably plug all pipes and other openings into the manholes.
- C. Test Procedure: Vacuum
1. Use only an approved testing machine.
 - a. National Pollution Control, Inc.
 - b. Or equal.
 2. Securely brace all plugs.
 3. Check cone section to insure good seal with Test Machine Bladder.
 4. Bring test vacuum to 10 in. Hg gauge.
 - a. Time:
 - Manholes 0'-10' - 2 minutes
 - Manholes 10'-15' - 2.5 minutes
 - Manholes 15'-25' - 3 minutes
 - b. Allowable leakage is 1" Hg or less per times given.
 - c. If pressure drop exceeds 1" Hg in the required time, the manhole shall be repaired and retested.
 - d. If the manhole fails after being repaired, the manhole shall be "Water Exfiltration Tested" according to the criteria of the specification.
 5. When a leak is identified, repair the area from both inside and out by a method approved by the Engineer. Methods to be considered include parging with hydraulic cement and pressure application of polyurethane grout.
- E. Backfilling:
1. Manhole testing may be conducted either before or after backfilling around the manhole. However, if the Contractor elects to backfill prior to testing, for any reason, it shall be at Contractor's own risk and it shall be incumbent upon the Contractor to determine the reason for any failure of the test.
 2. No adjustment in the leakage allowance will be made for unknown causes such as leaking plugs, absorption, etc. It shall be assumed that all loss of water during the test is a result of leaks through the joints or through the concrete.
 3. If the manhole test fails, lower the water table and carry out the exfiltration test specified above at no additional cost to the Owner.
- F. Accident Prevention: Following the satisfactory completion of the leakage test, place the frame and cover on the top, or provide other means of preventing accidental entry by unauthorized persons, children, animals, etc., until ready to make final adjustment to grade.

END OF SECTION

SPECIAL PROVISION

To Section 607 (NHDOT Standard Specifications) Fencing

Amend Section 607 to read:

SECTION 607

Remove and Replace 4' High Cedar Fence

This item is for the removal and replacement of the wooden fence located between #40 and #50 Cornwall Street.

The existing fence is approximately 4' high and is a cedar stockade fence.

The proposed fence type will also be 4' high. The fence is at this time proposed to be cedar. Homeowner will determine exact style of fence to be installed.

Provide approximately 40' of cedar wood fencing including 1 3-4' gate installed in a straight line between and even to the fronts of both houses. Fencing will be complete including all hardware. There will be no finishes or coatings required other than those typically found on the hardware.

SPECIAL PROVISION

To Section 608 (NHDOT Standard Specifications) Sidewalks

Amend Section 608 to read:

**SECTION 608.24 & 608.26
CONCRETE SIDEWALK CONSTRUCTION**

1.01 **Scope of Work:** The work shall consist of construction of concrete sidewalks as shown on the plans or as directed in the field by the Engineer.

1.02 **Methods of Construction:**

1.02a All labor and materials shall conform to the State of New Hampshire Standard Specifications for Road and Bridge Construction, Section 608, 203 and 209 except as amended here.

1.02b All concrete shall be Class A, 4000-PSI after 28 days with 5 to 7 percent air entrained. The maximum concrete slump that will be allowed is 5, this may be tested by the engineer at any time. All concrete will have polyfiber reinforcing. Any concrete found not meeting this specification will be removed and repoured by the contractor with no additional expense to the owner. Expansion joints shall be 25' apart. Control joints shall be 5' apart and shall be ¼ of the depth of the sidewalk (Up to 1 1/2" deep).

1.02c Minimum thickness shall be 4" (for 608.24) or 6" (for 608.26) and unless approved by the engineer.

1.02d The ends of all sidewalks at driveways shall be ramped at a maximum slope of 1:12.

1.02e All sidewalks shall have handicap ramps at street intersections or as located by the Engineer, built at a maximum slope of 1:12 and in accordance with the ADA Regulations (see plan details).

1.02f Excavation for new sidewalks shall be at a depth of 12 inches below finish grade. In areas not butting curbing or buildings the excavation shall be 6 inches wider on each side than the finished sidewalk width. At all drive crossings, the depth of excavation shall be increased accordingly. All unsuitable material shall be approved by the Engineer and removed and disposed of offsite at the Contractor's own expense. At no time will unsuitable material be left under sidewalk areas.

1.02g **Handicapped ramps (at street intersections) shall be 6" deep, 4000 psi fiber mix reinforced with 6" x 6" x 10ga welded wire mesh with truncated dome panels (paid for under 608.52).**

1.02h All exposed edges of sidewalks will be sealed with an approved Silane-Siloxane coating as specified under 534.3.4. Any sidewalks not meeting the test referenced in 534.3.4 will be recoated at no expense to the owner. Contractor will provide cut sheets on product before installation for engineers approval.

1.02i All sidewalk areas shall be thoroughly wetted and compacted prior to the pouring of any concrete. All sidewalks will be kept damp using wet burlap tarps or any other approved method for 24 hours after set up. Tarps will be staked down to prevent being blown off by wind gusts. Curing compounds will be considered an approved equal.

1.02j All sidewalks will be finished with a soft broom with the finish being transverse to the typical pedestrian path. After brooming, all edges will be finish edged.

1.02k Any sidewalks poured that have excessive "popcorning" on top or on the sides as determined by the engineer will not be approved or paid for.

1.02l All joints shall be straight, even and perpendicular to the sidewalk.

1.03 Methods of Measurement:

This work shall be measured by the square yard of concrete sidewalk successfully & completely installed and approved by the Engineer.

1.04 Basis of Payment:

This work shall be paid for at the Contract Unit Price as listed in Item #608.24 & 608.26 in the Bid Specification.

This price shall include all equipment, material and labor incidental hereto.

SPECIAL PROVISION

To Section 608 (NHDOT Standard Specifications) Sidewalks **Item 608.52 – ADA Compliant Handicap Ramp Panels**

This special provision provides for the installation of handicap accessible ramp surfaces (Detectable Warning Pavers) to be in compliance with the Americans with Disabilities Act (ADA). This Special Provision provides for Item 608.4 and neither modifies nor amends any other provisions of this section unless specifically noted.

Description

1.1 This work shall consist of furnishing and installing a detectable warning surface and accessories on sidewalk ramps at locations shown on the plans, as specified herein, or as ordered including any and all required surface preparation. Detectable warnings shall be installed at sidewalk ramps where a sidewalk crosses a vehicular way, excluding unsignalized driveway crossings. The edge nearest the curblineline shall be located 150 to 200 mm (6 to 8 in) from the face of curblineline. The paver shall be centered on the ramp.

Materials

2.1 Detectable Warning Device:

2.1.1 Material. The detectable warning surface shall consist of Engineered Plastic units or approved equal. The units will be pressed into Portland cement or other Owner approved material.. **The paver units shall be Armor Tile as manufactured and supplied by Engineered Plastic, Inc., 300 International Dr Suite 100, Williamsville, NY 14221, 1-800-769-4463, www.armor-tile.com**

2.1.2 Color. The color of the tile used shall be **red**, all would be installed in a concrete ramp as described above (608.26).

2.1.3 Paver Dimensions. Nominal paver dimensions shall be **2' deep x 3' wide**.

2.1.4 Detectable Warning Truncated Dome Geometry:

2.1.4.1 Detectable warnings shall be in full compliance with ADAAG guidelines (Title 49 DFR Transportation, Part 37.9 Standard for Accessible Transportation Facilities, Appendix A, Section 4.29.2- Detectable Warning on Walking Surfaces).

2.1.4.2 Size and spacing for truncated domes shall be as follows: base diameter of nominal 0.9 inch, top diameter of nominal 0.4 inch, height of nominal 0.2 inch, with a center to center spacing of nominal 2.35 inches.

2.1.4.3 The truncated dome pattern shall align properly from paver to paver if more than 1 paver is required.

2.2 Setting Bed Material

2.2.1 Material. Pavers shall be set into fresh concrete before it sets. See ramp specification above (608.26). Also see manufacturer instructions.

Construction Requirements

3.1 The Contractor shall submit manufacturer's installation instructions and descriptive literature for materials specified herein.

- 3.2 Transport, storage, and handling of products shall be in accordance with manufacturer's instructions.
- 3.2.1 All sealants/adhesives shall be protected from freezing conditions.
- 3.3 The air and surface temperatures during construction shall be in accordance with manufacturer's recommendations.
- 3.4 Concrete foundation shall be installed in accordance with the specifications included within Section 608 to depths indicated in the section shown on the plans.
- 3.5 Install detectable warning pavers in accordance with manufacturer's instructions directly in the setting bed and the allowing the top surface of the paver units to be at or just below the required finish grade.
- 3.6 Care shall be taken to ensure the safety of pedestrians when sidewalks must remain in service during construction.

Method of Measurement

- 4.1 These are measured by each panel installed under the truncated dome panel item.

Basis of Payment

Pay Item and Unit

608.52 Truncated Dome Pavers (Detectable Warning Pavers Only) Each

SPECIAL PROVISIONS

AMENDMENT TO SECTION 618.6 – Uniformed Officers

AMENDMENT TO SECTION 618.7 – Traffic Control Flaggers

AMENDMENT TO SECTION 619.1 – Maintenance of Traffic

The construction work zone(s) designated for this contract shall extend approximately 100 feet, beyond the work limits as described below and/or shown on the project layout map

618.6 UNIFORMED OFFICERS

Whenever the contractor is working in Islington St, Portsmouth Police officers will be hired to conduct traffic details. Traffic details on the other streets will be under the discretion of the Engineer.

618.6 TRAFFIC CONTROL FLAGGERS

Whenever the contractor is working in intersections or roads that cannot be closed to thru traffic, flaggers may be hired under the discretion of the Engineer.

619.1 MAINTENANCE OF TRAFFIC

All work shall be prosecuted so pedestrian and traffic flow can be maintained whenever possible. No travel lane or sidewalk closures will be allowed without prior approval from the Engineer.

The Contractor will develop a construction staging plan for this project. The plan shall be submitted to be approved by the Engineer.

Access shall be maintained to the abutting driveways at all times during construction.

Pedestrian walkways etc. may be ordered by the Engineer if the need arises.

Dust and traffic control may be ordered by the Engineer.

All costs associated with the application of these measures or other measures directed by the Engineer shall be paid for under this item and will not be further chargeable to the project, except as stipulated and specified under Contract Items.

Method of Measurement:

The uniformed officer work shall be measured by the exact cost billed to the contractor based on the man-hours worked.

The flagger work shall be measured by the exact cost billed to the contractor based on the man-hours worked.

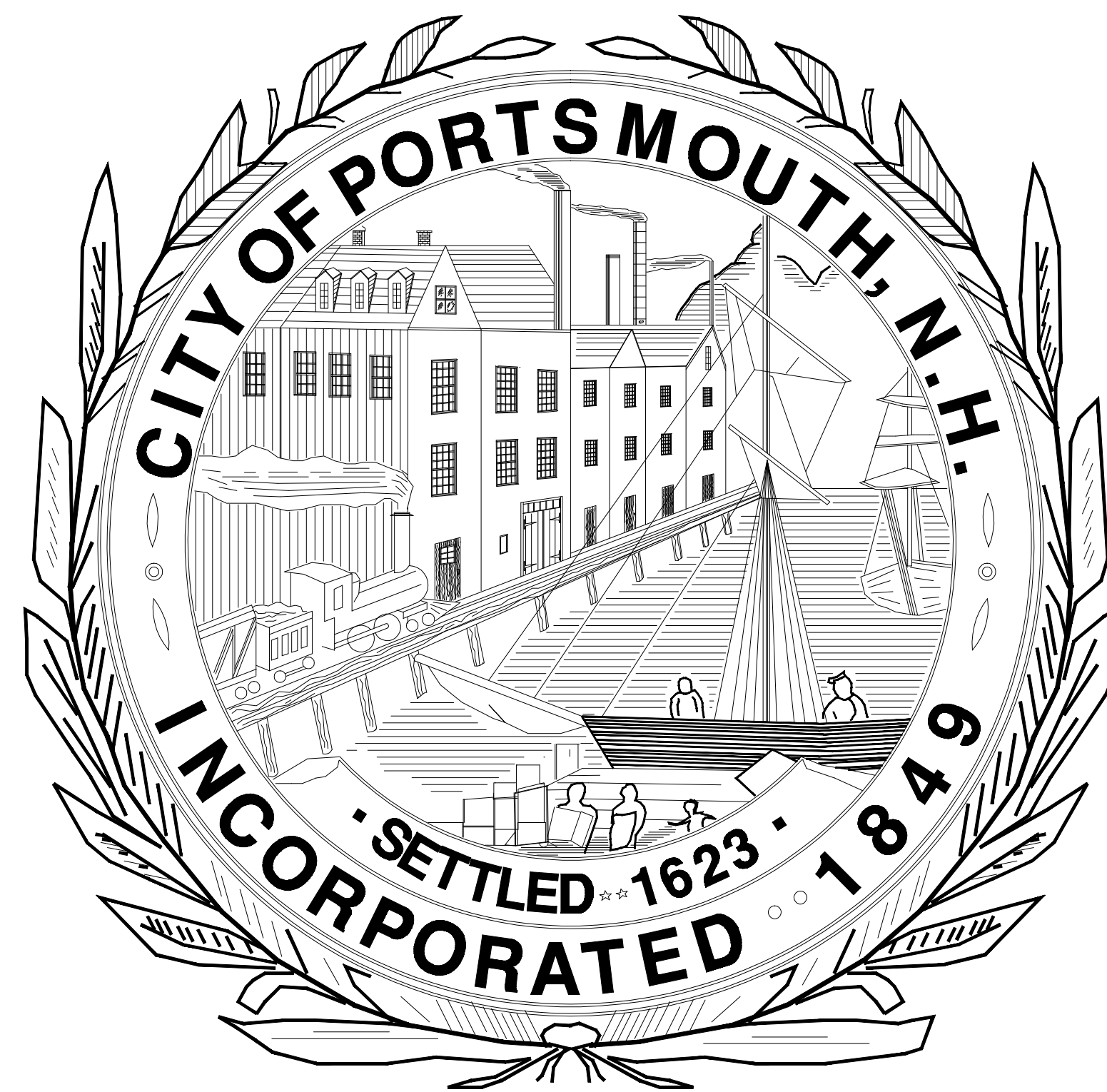
The traffic control items shall be measured on a unit basis under Maintenance of Traffic.

Basis of Payment:

This work shall be paid for from the Contract Price Allowance as listed under Items 618.6 & 618.7 in the Bid Proposal Form using the actual man-hours worked in the field on the project.

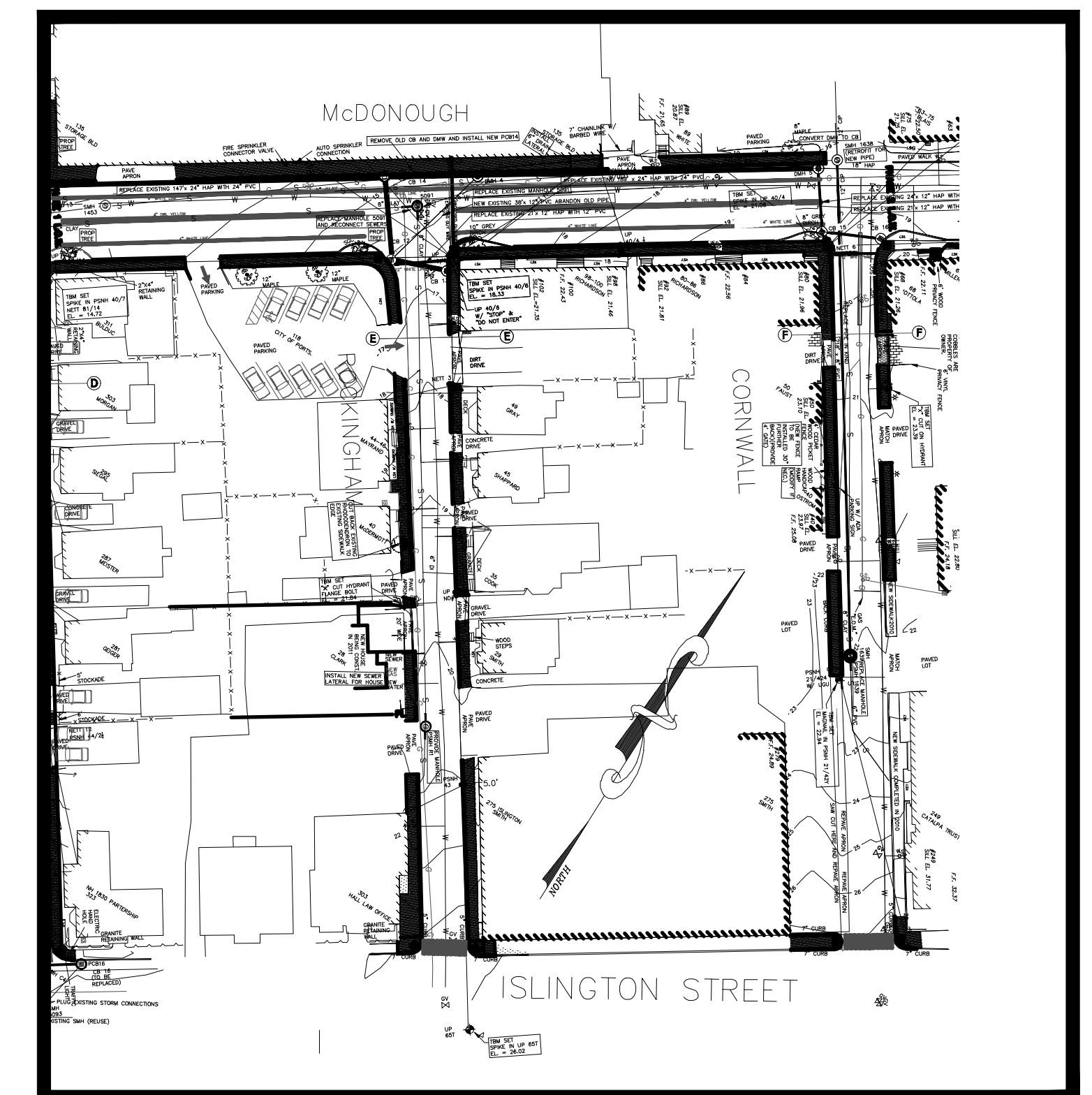
This work shall be paid for from the Contract Unit Price as listed under Item 619.1 (Maintenance of Traffic). This unit price shall include all equipment, materials and labor thereto.

MCDONOUGH STREET AREA RECONSTRUCTION



PHASE II

**DEPARTMENT OF
PUBLIC WORKS
CITY OF PORTSMOUTH, NH
SPRING 2011**



PHASE 2 AREA

INDEX:

SHEET 1 MCDONOUGH STREET PLAN
SHEET 2 ROCKINGHAM ST & CORNWALL ST PLANS
SHEETS 3 - 4 CONSTRUCTION DETAILS

CONTACT NUMBERS:

PUBLIC WORKS: 427-1530
WATER DEPARTMENT 427-1552
POLICE DETAILS: 610-7412
AMERICAN FLAGGING: 890-1154
GAS EMERGENCY: 866-900-4115
EMERGENCY: 911

EXISTING SEWER MANHOLE TABLE

SMH #1453 RIM 13.12' (W) 8" CLAY 8.13' (E) 8" CLAY 8.10'	SMH #1638 RIM 18.54' (S) 12" C.I. 12.93' (N) 12" C.I. 12.74'
SMH #5091 (TO BE REMOVED) RIM 15.62' (W) 8" CLAY 8.36' (S) 8" CLAY 8.42'	SMH #1639 (TO BE REMOVED) RIM 21.94' (N) 6" CLAY 16.13' (S) 6" PVC 16.03'

PROPOSED SEWER MANHOLE TABLE

PSMH R1 RIM=20.55' INV = ASSUMED 6' DEPTH	PSMH 5091 RIM=15.62' INV IN = 8.42'
PSMH 1639 RIM=21.94' INV IN = 16.13' INV OUT = 16.03'	PSMH 5091 RIM=15.62' INV IN = 8.42'

PROPOSED CATCH BASIN TABLE

PSB 1410 HOOD ON THIS BASIN RIM=14.81 (ADJUST IN FIELD) INV = 10.6 (2') INV = 9.6 (2')

EXISTING CATCH BASIN TABLE

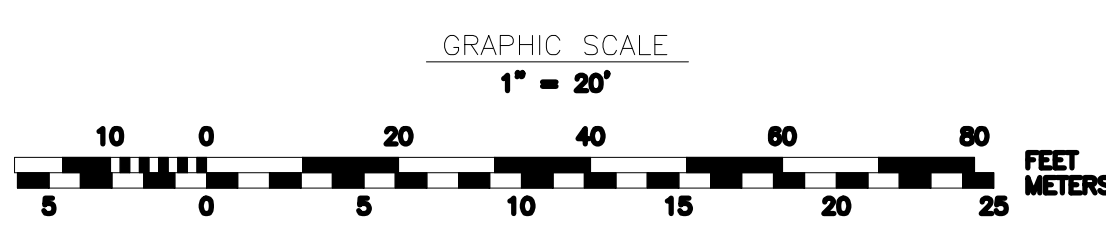
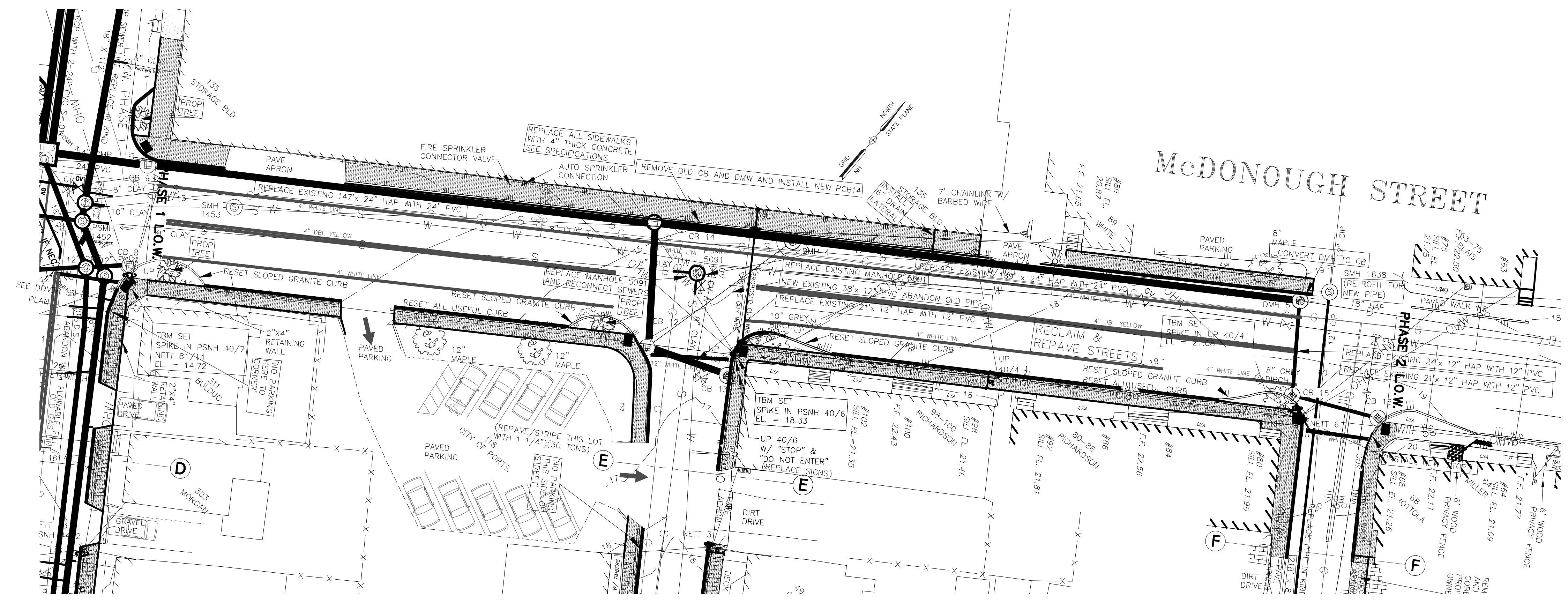
CB 9 RIM 12.49' INV. IN 9.19 (W)(12" CMP) INV. IN 8.99 (E)(15" CMP) INV. OUT 9.04 (N)(12" CMP)	CB 15 RIM 19.11' INV. IN 16.71 (E) (12" CMP) INV. IN 12.66 (NE) (6" PVC) INV. OUT 10.21 (N) (12" CMP)
CB 12 (RECORE FOR NEW PIPE) RIM 15.96' INV. IN 12.11 (12" CMP) INV. OUT 11.86 (12" CMP)	CB 16 RIM 19.14' INV. OUT 16.71 (W)(12" CMP)

EXISTING DRAIN MANHOLE TABLE

DMH 4 (TO BE REMOVED) RIM 15.83' INV. IN 9.78 (24" CMP) INV. OUT 9.74 (24" CMP)	DMH 5 RIM 18.76' INV. IN (E) 9.87 (18" CMP) INV. IN (S) 10.12' INV. OUT (W) 9.86 (24" CMP)
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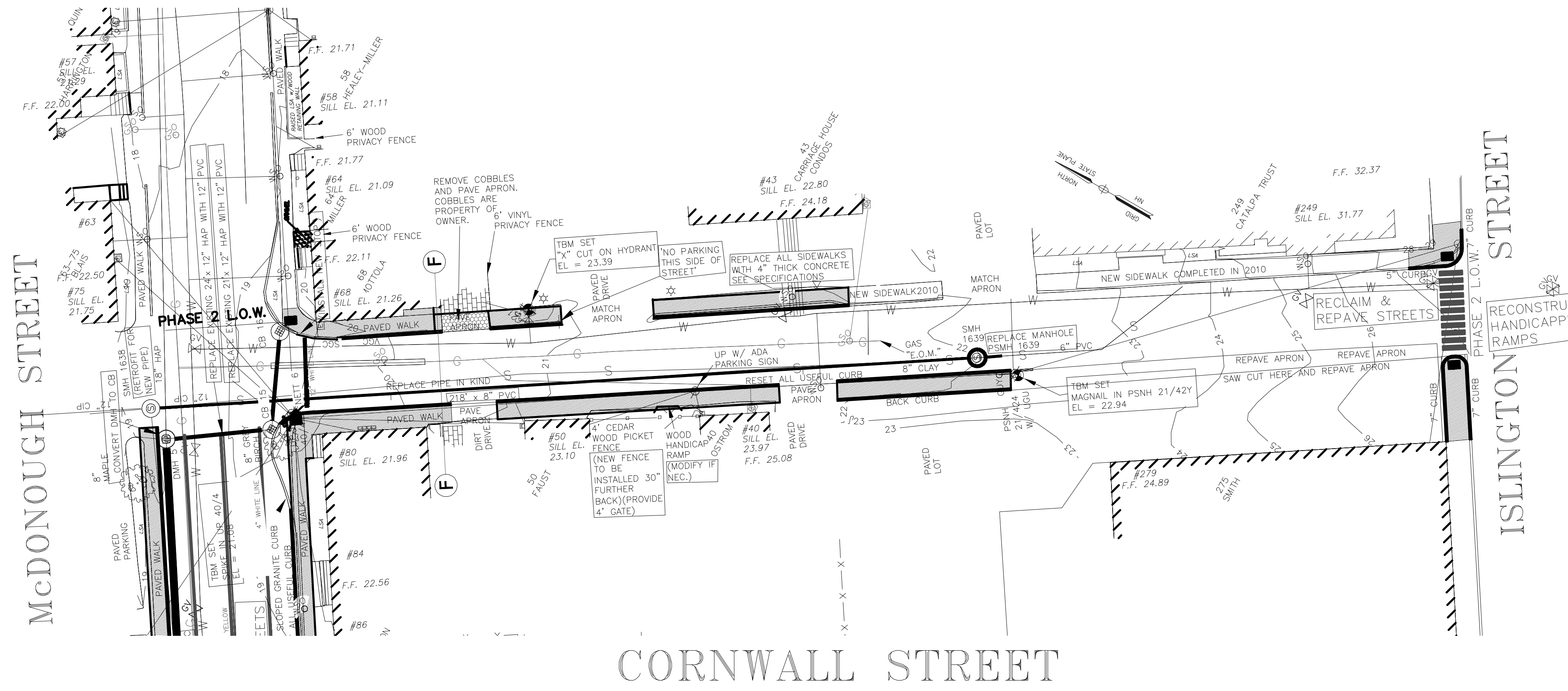
LEGEND:

	CONCRETE		CONTOUR	AB	ALARM BELL
	BRICK		EDGE OF PAVEMENT (EP)	AC	ASBESTOS CEMENT
	MATCHLINE		WOODS / TREE LINE	AS	AUTO SPRINKLER
	PLASTIC FENCE		UTILITY POLE (w/GUY)	CI	CAST IRON
	WOODEN FENCE		UTILITY POLE	CMP	CORRUGATED METAL PIPE
	CHAIN LINK FENCE		WATER SHUTOFF/CURB STOP	COP	COPPER PIPE
	WIRE FENCE		GAS SHUTOFF	DI	DUCTILE IRON
	FORCE MAIN		GATE VALVE	DYL	DOUBLE YELLOW LINE
	SEWER LINE		HYDRANT	EL.	ELEVATION
	GAS LINE		MONITORING WELL	FF	FINISHED FLOOR
	STORM DRAIN		BOLLARD	HAP	HELICAL ALUMINUM PIPE
	WATER LINE		CATCH BASIN	INV.	INVERT
	UNDERGROUND ELECTRIC		TELEPHONE MANHOLE	LSA	LANDSCAPED AREA
	OVERHEAD ELECTRIC/WIRES		SEWER MANHOLE	PVC	POLYVINYL CHLORIDE
			DRAIN MANHOLE	RCP	REINFORCED CONCRETE PIPE
			MANHOLE (UNIDENTIFIED)	RD	ROOF DRAIN
				SWL	SINGLE WHITE LINE
				TBM	TEMPORARY BENCHMARK
				TYP.	TYPICAL
				VC	VITRIFIED CLAY PIPE
				SGC	SLOPED GRANITE CURB
				VGC	VERTICAL GRANITE CURB



DEPARTMENT OF
PUBLIC WORKS
CITY OF PORTSMOUTH, NH

NO.	DESCRIPTION	DATE
REVISIONS		
STREET PLAN OF McDONOUGH STREET PHASE 2 PORTSMOUTH, NEW HAMPSHIRE		
DRAWING_SCALE_1"=20'		1/23/10



EXISTING SEWER MANHOLE TABLE

SMH #1453 RM 13.12' (W) 8" CLAY 8.13' (E) 8" CLAY 8.10	SMH #1638 RM 18.54' (S) 12" C.I. 12.93' (N) 12" C.I. 12.74'
SMH #5091 (TO BE REMOVED) RM 15.62' (W) 8" CLAY 8.36' (S) 8" CLAY 8.42'	SMH #1639 (TO BE REMOVED) RM 21.94' (N) 6" CLAY 16.13' (S) 6" PVC 16.03'

PROPOSED SEWER MANHOLE TABLE

PSMH R1 RM=20.55' INV = ASSUMED 6' DEPTH	PSMH 5091 RM=15.62' INV IN = 5.42 INV OUT = 8.36
PSMH 1639 RM=21.94' INV IN = 16.13 INV OUT = 16.03	

PROPOSED CATCH BASIN TABLE

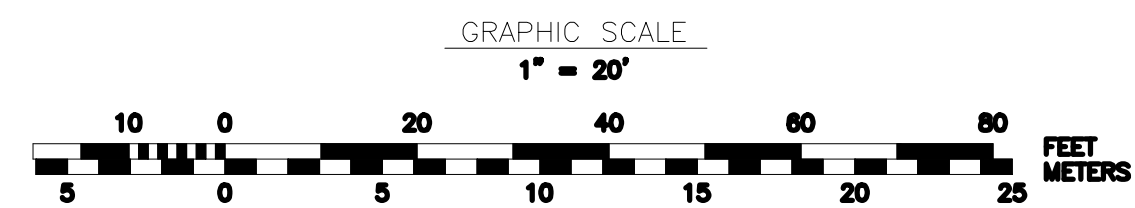
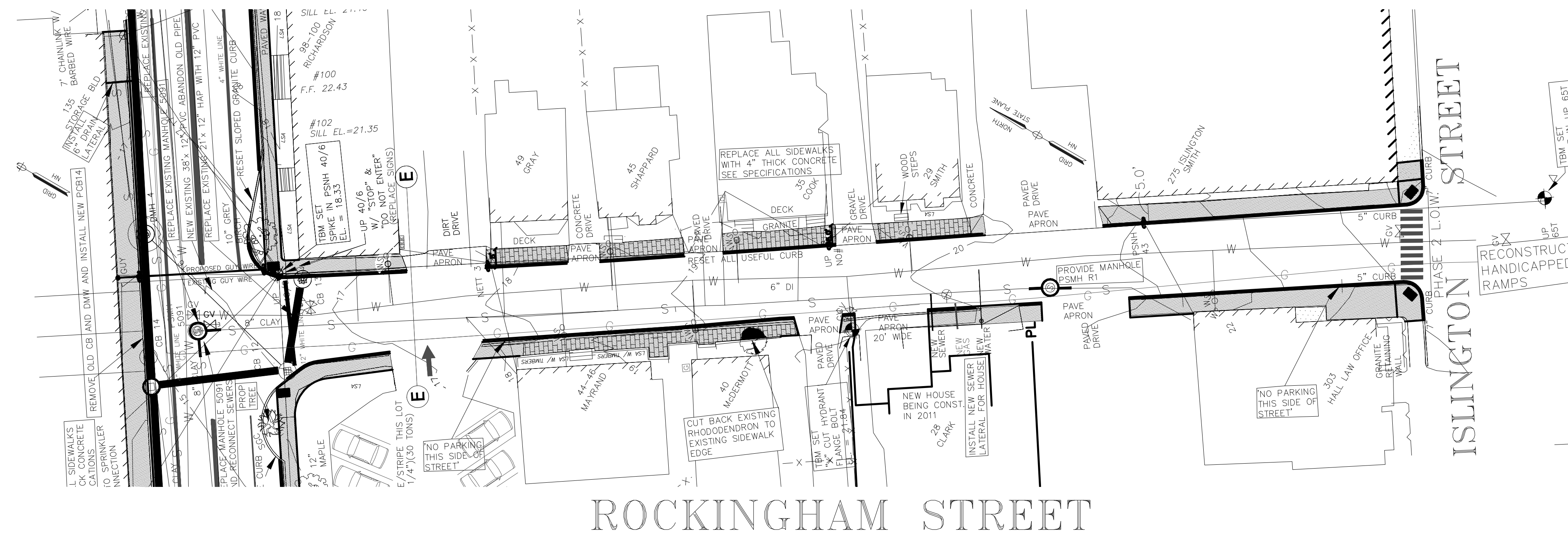
FCB 14 (NO HOOD ON THIS BASIN) RM=14.82' INV IN = 10.51(2') INV = 9.6(24')

EXISTING CATCH BASIN TABLE

CB 9 RM 12.49 INV. IN 9.19 (0)(12" CMP) INV. IN 8.99 (E)(15" CMP) INV. OUT 9.04 (N)(12" CMP)	CB 15 RM 19.11 INV. IN 16.71 (E) (12" CMP) INV. IN 12.66 (NE) (6" PVC) INV. OUT 10.21 (N) (12" CMP)
CB 12 (RECORE FOR NEW PIPE) RM 15.96 INV. IN 12.11 (12" CMP) INV. OUT 11.86 (12" CMP)	CB 16 RM 19.14 INV. OUT 16.71 (W)(12" CMP)

EXISTING DRAIN MANHOLE TABLE

DMH 4 (TO BE REMOVED) RM 15.83' INV. IN 9.78 (24" CMP) INV. IN (S) 10.04	DMH 5 RM 18.76 INV. IN (E) 9.87 (18" CMP) INV. IN (S) 10.04 INV. OUT (W) 9.86 (24" CMP)
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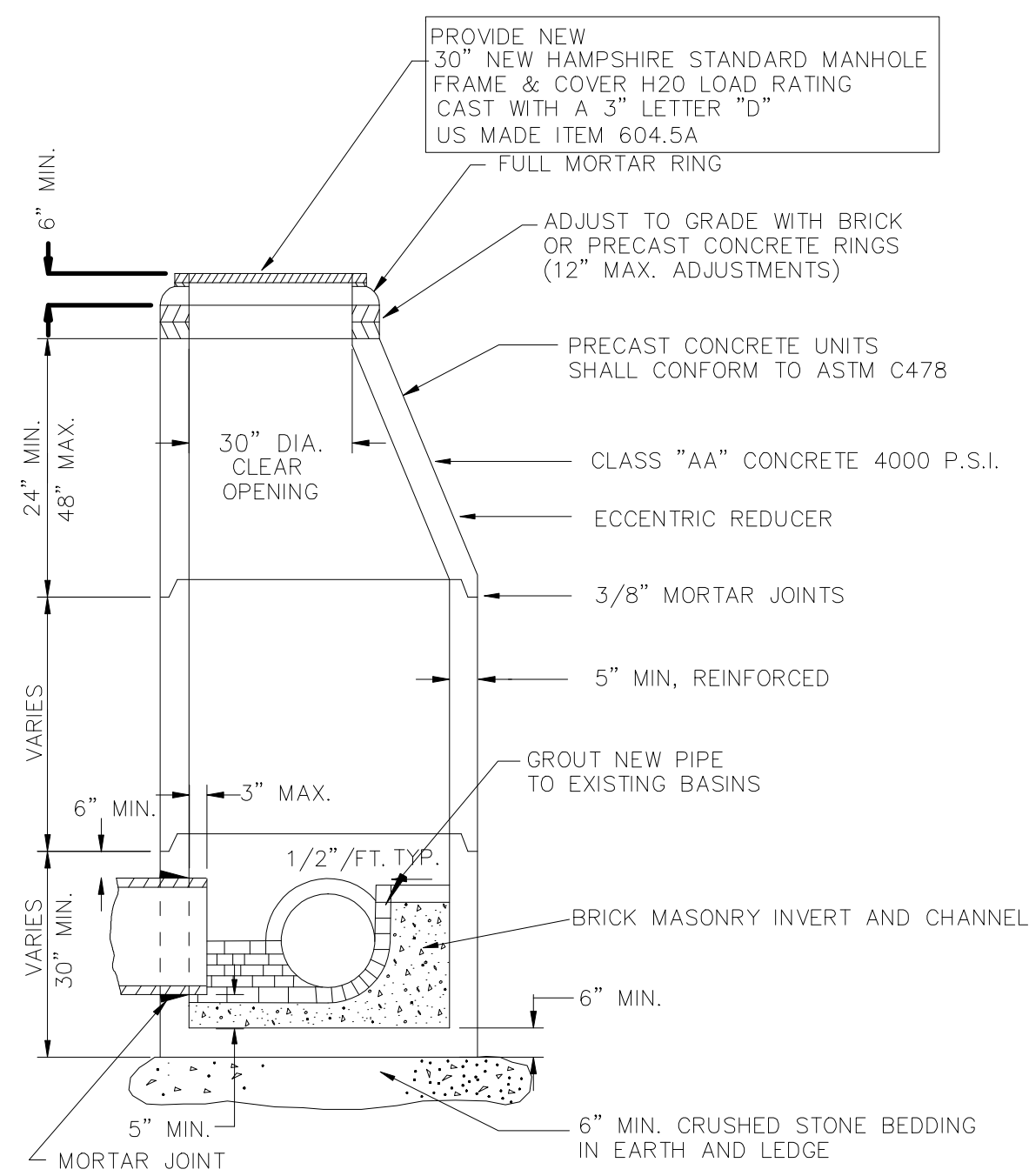
DEPARTMENT OF
PUBLIC WORKS
CITY OF PORTSMOUTH, NH

NO.	DESCRIPTION	DATE
REVISIONS		
STREET PLAN OF ROCKINGHAM STREET & CORNWALL STREET PORTSMOUTH, NEW HAMPSHIRE		
DRAWING_SCALE_1"=20'		1/23/11

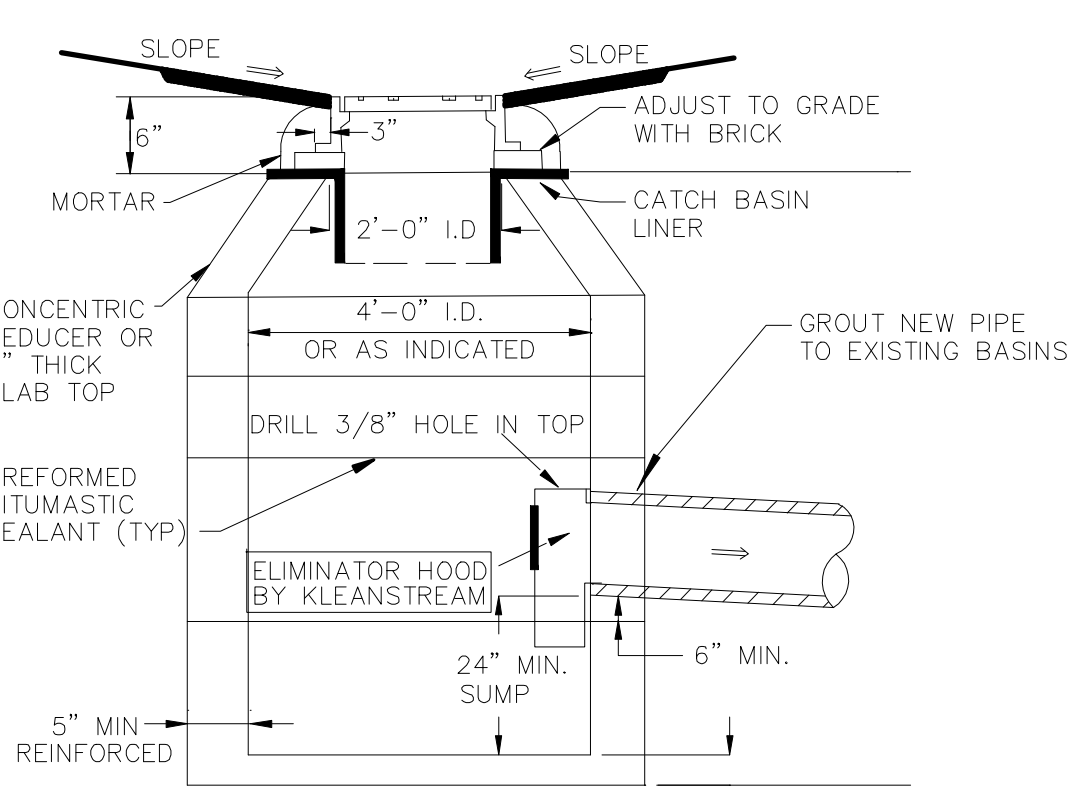
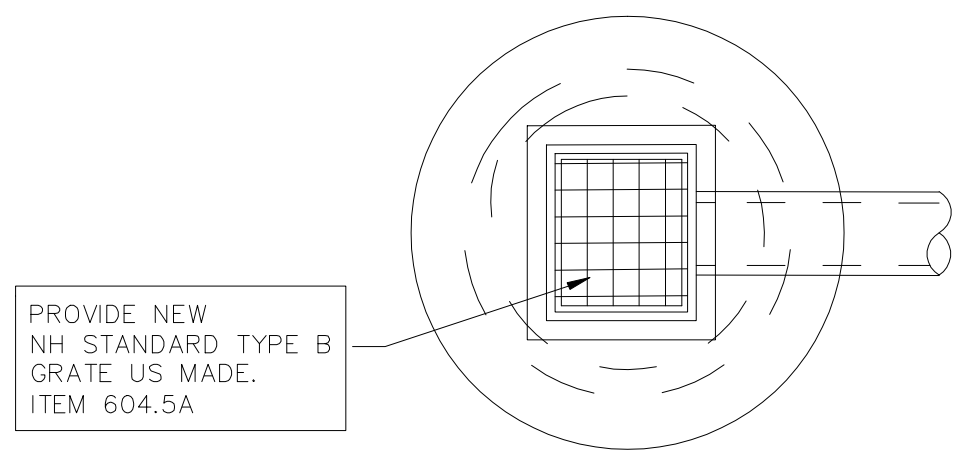
STANDARD MANHOLE NOTES:

1. BARRELS AND CONE SECTIONS SHALL BE PRECAST REINFORCED CONCRETE.
2. PRECAST CONCRETE BARREL SECTIONS, CONES, AND BASES SHALL CONFORM TO ASTM C478.
3. INVERTS AND SHELVES: MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF PIPE AND FLOW. CARE SHALL BE TAKEN TO INSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE INVERT. INVERT BRICKS SHALL BE LAID ON EDGE. AT CHANGES IN DIRECTION, THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST POSSIBLE TANGENT TO THE CENTER LINE OF THE PIPES. SHELVES SHALL BE CONSTRUCTED TO AN ELEVATION OF 1/2 THE PIPE DIA. AND SLOPE TO DRAIN TOWARD THE FLOWING THROUGH CHANNEL.
4. FRAMES AND COVERS: MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30-INCH CLEAR OPENING. LETTER "D" OR WORD "DRAIN", IN 3-INCH LETTERS SHALL BE PLAINLY CAST INTO THE CENTER OF EACH COVER.
5. BEDDING: SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING ASTM C33. STONE SIZE NO. 67.
 - 100% PASSING 1 INCH SCREEN
 - 0-10% PASSING #4 SIEVE
 - 90-100% PASSING 3/4 INCH SCREEN
 - 0- 5% PASSING #8 SIEVE
 - 20- 55% PASSING 3/8 INCH SCREEN

WHERE ORDERED BY THE ENGINEER TO STABILIZE THE BASE, SCREENED GRAVEL OR CRUSHED STONE 1-1/2 INCH TO 1/2 INCH SHALL BE USED.
6. SHALLOW MANHOLE: IN LIEU OF A CONE SECTION, WHEN MANHOLE IS LESS THAN 5 FEET, REINFORCED CONCRETE SLAB COVER HAVING AN ECCENTRIC ENTRANCE AND CAPABLE OF SUPPORTING H=20 LOADS MAY BE USED.



TYPICAL DRAINAGE MANHOLE
NOT TO SCALE



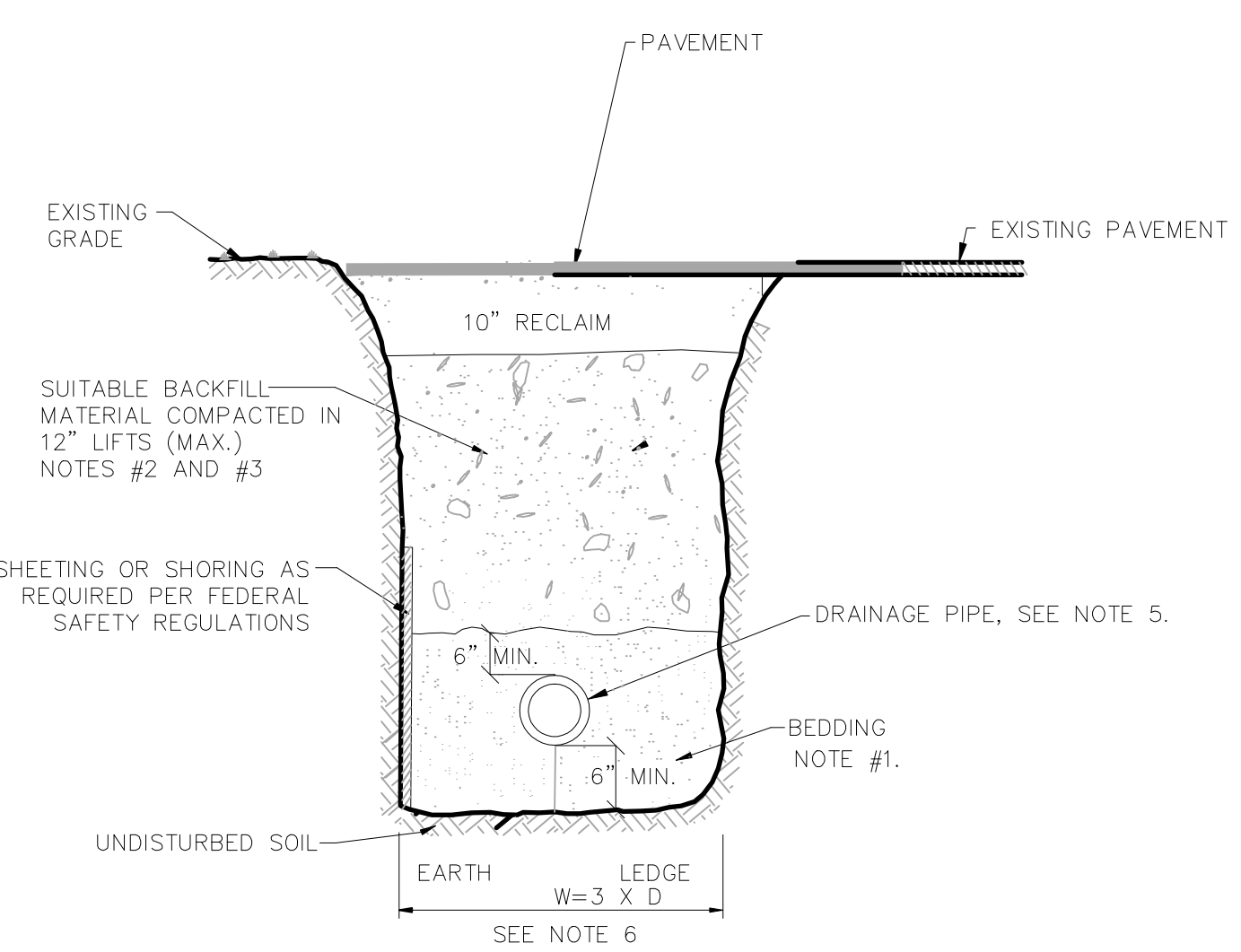
NOTE: ENTIRE STRUCTURE SHALL BE CAPABLE OF WITHSTANDING AN H = 20 LOAD. DETAILS OF REINFORCEMENT TO BE FURNISHED BY MANUFACTURER.

NOTE: EXISTING STRUCTURES WILL BE RETROFIT WITH NEW COVERS AND STORMWATER HOODS PAID FOR UNDER ITEM 604.5A.

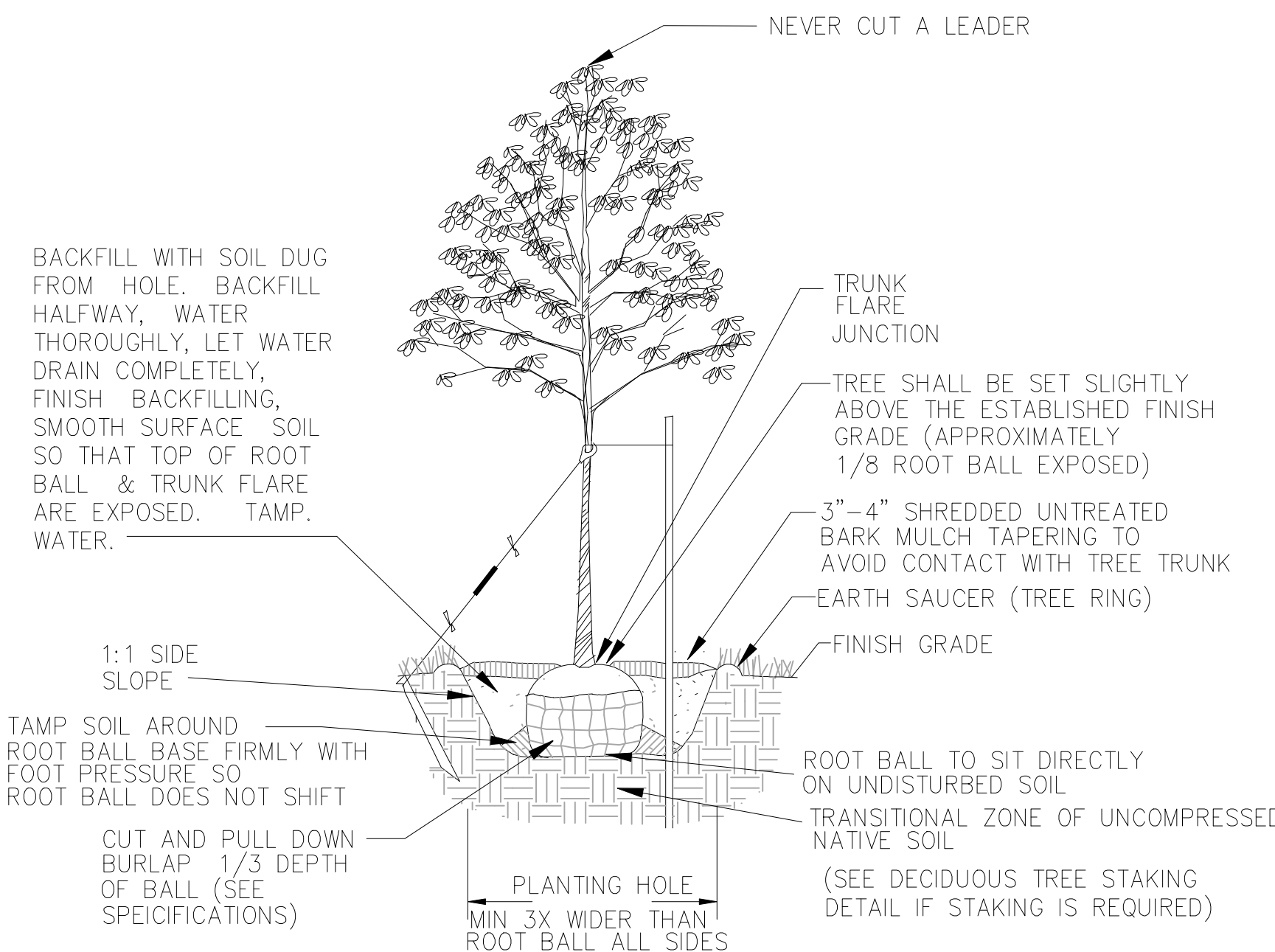
CATCH BASIN
NOT TO SCALE

TRENCH NOTES – STORM DRAIN

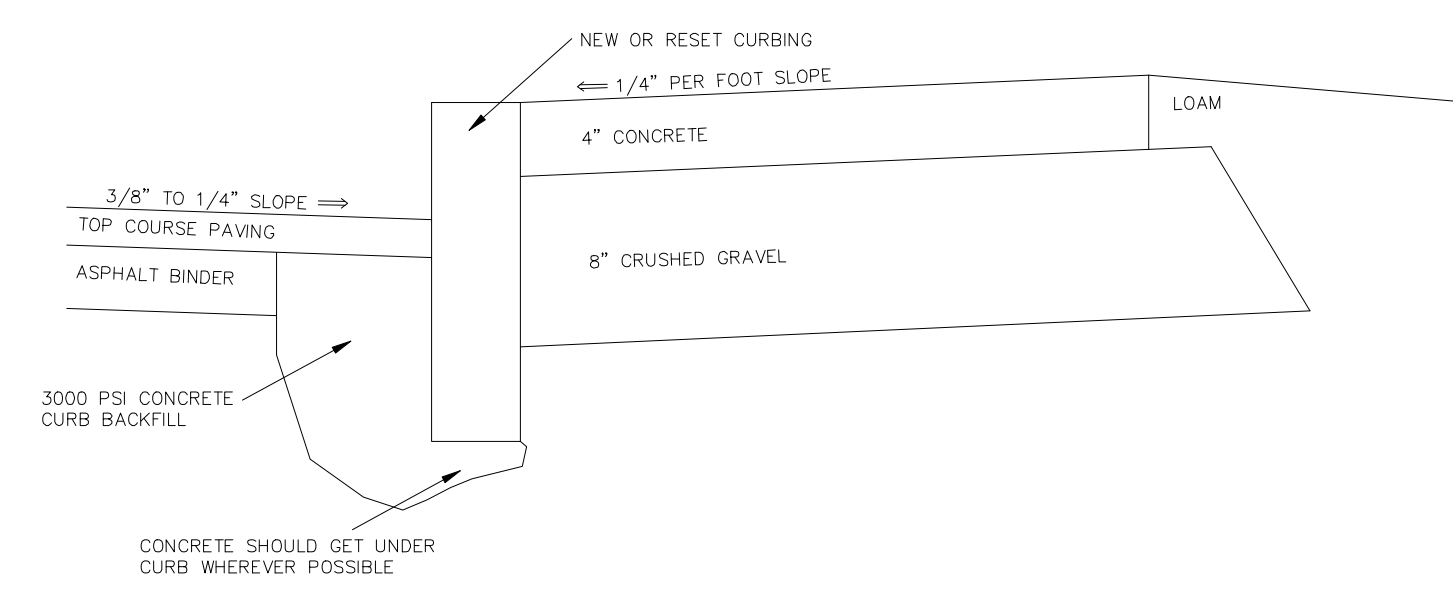
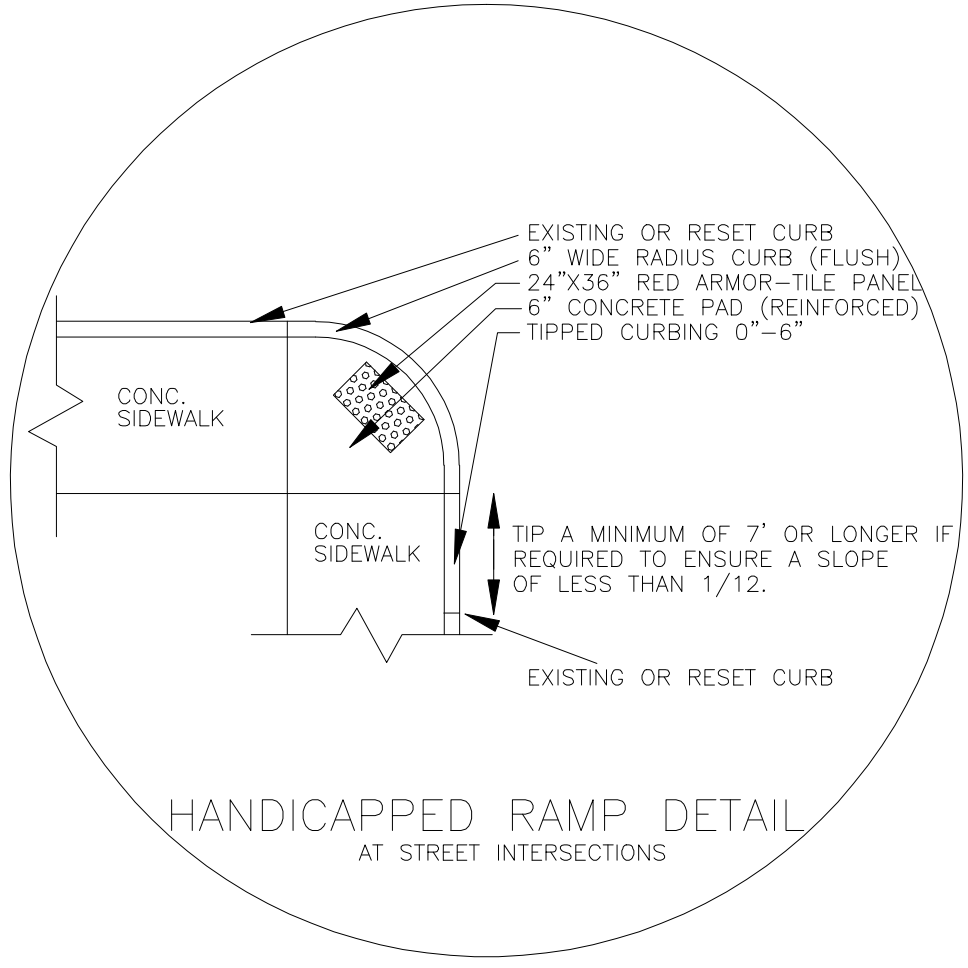
1. **BEDDING:**
BEDDING FOR PIPES SHALL CONSIST OF PREPARING THE BOTTOM OF THE TRENCH TO SUPPORT THE ENTIRE LENGTH OF THE PIPE AT A UNIFORM SLOPE AND ALIGNMENT. CRUSHED GRAVEL (NHDOT ITEM 304.3) OR CRUSHED STONE SHALL BE USED TO BED THE PIPE TO THE ELEVATION SHOWN ON THE DRAWINGS.
2. **COMPACTION:**
ALL BACKFILL SHALL BE COMPACTED AT OR NEAR OPTIMUM MOISTURE CONTENT BY PNEUMATIC TAMPERS, VIBRATORY COMPACTORS OR OTHER APPROVED MEANS. BACKFILL BENEATH PAVED SURFACES SHALL BE COMPACTED TO NOT LESS THAN 95 PERCENT OF AASHTO T99, METHOD C.
3. **SUITABLE MATERIAL:**
IN ROADS, ROAD SHOULDERS, WALKWAYS AND TRAVELED WAYS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT, OR CLAY; ALL EXCAVATED LEDGE MATERIAL; ROCKS OVER 6 INCHES IN LARGEST DIMENSION; FROZEN EARTH AND ANY MATERIAL WHICH, AS DETERMINED BY THE ENGINEER, WILL NOT PROVIDE SUFFICIENT SUPPORT OR MAINTAIN THE COMPLETED CONSTRUCTION IN A STABLE CONDITION.
IN SEEDED AREAS, SUITABLE MATERIAL SHALL BE AS DESCRIBED ABOVE. EXCEPT THAT THE ENGINEER MAY PERMIT THE USE OF TOP SOIL, LOAM, ROCKS UNDER 12", FROZEN EARTH OR CLAY, IF HE/SHE IS SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE AND PROVIDED THAT EASY ACCESS TO THE PIPE WILL BE PRESERVED.
4. **BASE COURSE AND PAVEMENT:**
SHALL MEET THE REQUIREMENTS OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION'S LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES – DIVISIONS 300 AND 400 RESPECTIVELY.
5. **DRAINAGE PIPE:**
PIPE MATERIALS SHALL BE EITHER POLYVINYL CHLORIDE (PVC)
6. **W=MAXIMUM ALLOWABLE TRENCH WIDTH:**
W SHALL BE THE MAXIMUM PAYMENT WIDTH FOR ROCK EXCAVATION (TRENCH) AND FOR ORDERED EXCAVATION BELOW GRADE.



TRENCH DETAIL – STORM DRAIN
NOT TO SCALE

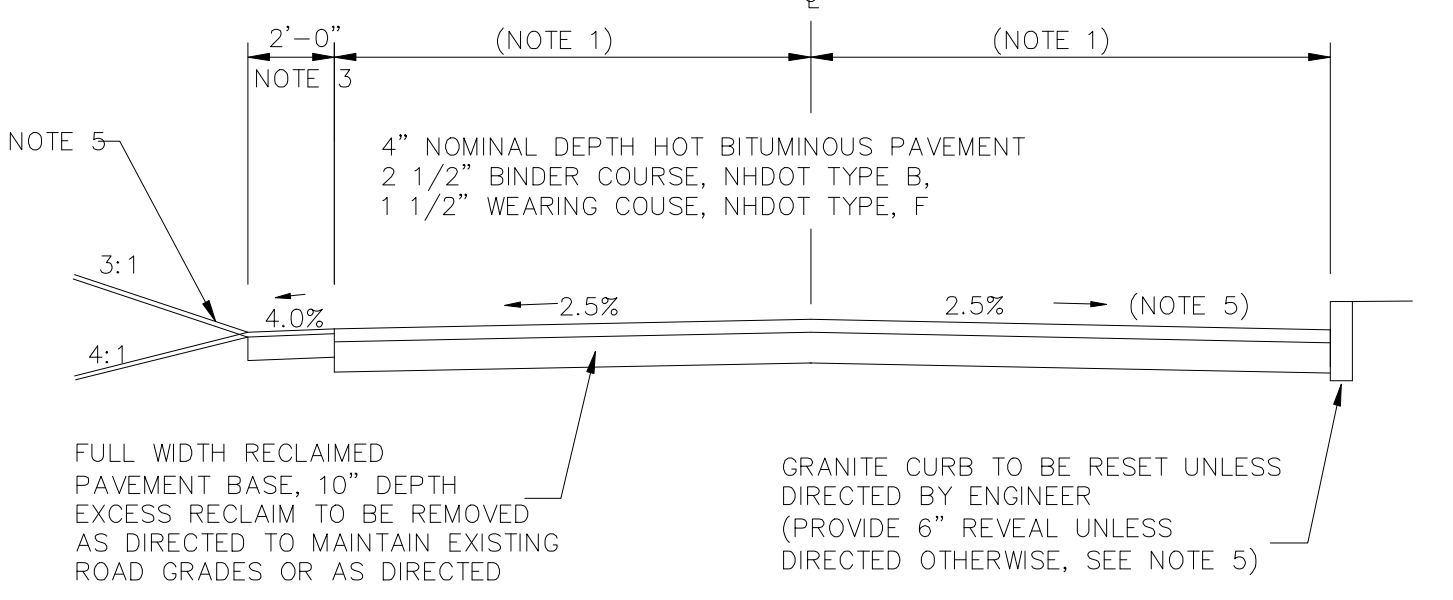


DECIDUOUS TREE PLANTING DETAIL
N.T.S.



SIDEWALK X-SECTION
N.T.S.

1. RECONSTRUCT ROADWAY IN ACCORDANCE TO PLAN UNLESS DIRECTED OTHERWISE.
2. EXISTING DRIVEWAYS ARE TO BE SAWCUT PRIOR TO PAVING. MATCH EXISTING DRIVEWAY ELEVATIONS UNLESS OTHERWISE DIRECTED, SUBSIDIARY.
3. PROVIDE 2 FOOT WIDE GRAVELED SHOULDER WHERE CURBING IS NOT PRESENT, SUBSIDIARY.
4. SEED & MULCH ROADSIDE SLOPES, SUBSIDIARY.
5. UNIFORMLY GRADE ROADWAY PRIOR AND PROVIDE A POSITIVE GRADIENT TO THE EXISTING DRAINAGE STRUCTURES, MIN. CROSS SLOPE=2%, MIN. GUTTER SLOPE=0.5%.



PAVEMENT RECLAMATION & FULL WIDTH PAVING DETAIL
NOT TO SCALE

NOTES

1. SEE GENERAL NOTES, SHEET 1
2. AREA TO BE LOAMED AND SEEDED (BY OTHERS)
3. 4" THICK X 5' WIDE CONCRETE SIDEWALK
4. 8" THICK COMPACTED CRUSHED GRAVEL BASE
5. UNDISTURBED (OR RECOMPACTED) EXISTING SOIL
6. EXISTING LAWN AREA

ALL CONCRETE MUST BE 4000 PSI, 5-7% AIR ENTRAINED, FIBER REINFORCED WITH CONTROL JOINTS EVERY 5' AND EXPANSION JOINTS EVERY 25'. ALL CONTROL JOINTS WILL BE MADE WITH A JOINTING TOOL TO A DEPTH OF 1/4 OF THE SIDEWALK DEPTH. EXPANSION MATERIAL WILL ALSO BE USED AROUND MANHOLE COVERS, UTILITY POLES, ETC..

A PROTECTIVE COATING OF SILANE-SILOXANE SHALL BE APPLIED TO ALL EXPOSED SURFACES. THREE DAYS AFTER APPLICATION, THE ENGINEER WILL TEST THE PRODUCT. IF THE TEST COMES OUT NEGATIVE, THE CONTRACTOR WILL INSTALL A SECOND COAT OF THE PRODUCT.

CURING COMPOUNDS WILL NOT BE PERMITTED UNLESS DIRECTED BY THE ENGINEER.

ALL SIDEWALKS WILL HAVE A LIGHT BROOM FINISH TRANSVERSE TO THE WALKING PATH.

AFTER STRIPPING FORMS, THE SUBGRADE ON THE SIDES OF THE CONCRETE WILL BE BROUGHT UP EVEN WITH THE BOTTOM OF THE SIDEWALK OR 4" FROM THE TOP WHICHEVER IS LESS.

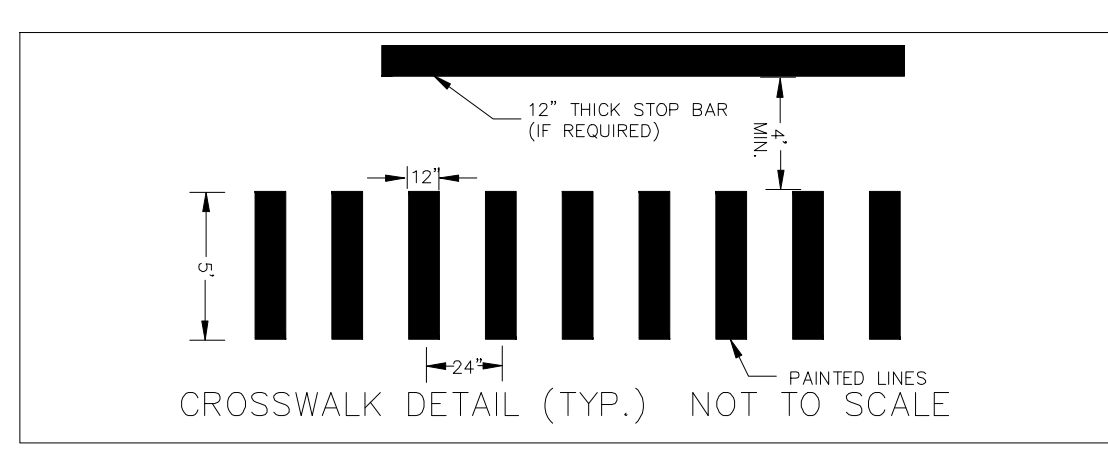
DISTURBANCE OF LOAM MORE THAN 12" WIDE ON EITHER SIDE OF THE FINISHED SIDEWALK WILL NOT BE PAID FOR UNLESS DIRECTED BY THE ENGINEER.

HANDICAPPED RAMPS AT STREET CORNERS SHALL BE 6" DEEP AND BE REINFORCED WITH 6X6X10 WIRE MESH SHEETS.

SIDEWALK CROSS SECTION DETAIL (TYP.) NOT TO SCALE



DEPARTMENT OF
PUBLIC WORKS
CITY OF PORTSMOUTH



NO.	DESCRIPTION	DATE
REVISIONS		
CONSTRUCTION DETAILS		
OF		
McDONOUGH STREET AREA		
PHASE 2		
PORTSMOUTH, NEW HAMPSHIRE		
DRAWING_SCALE_NONE		1/23/10

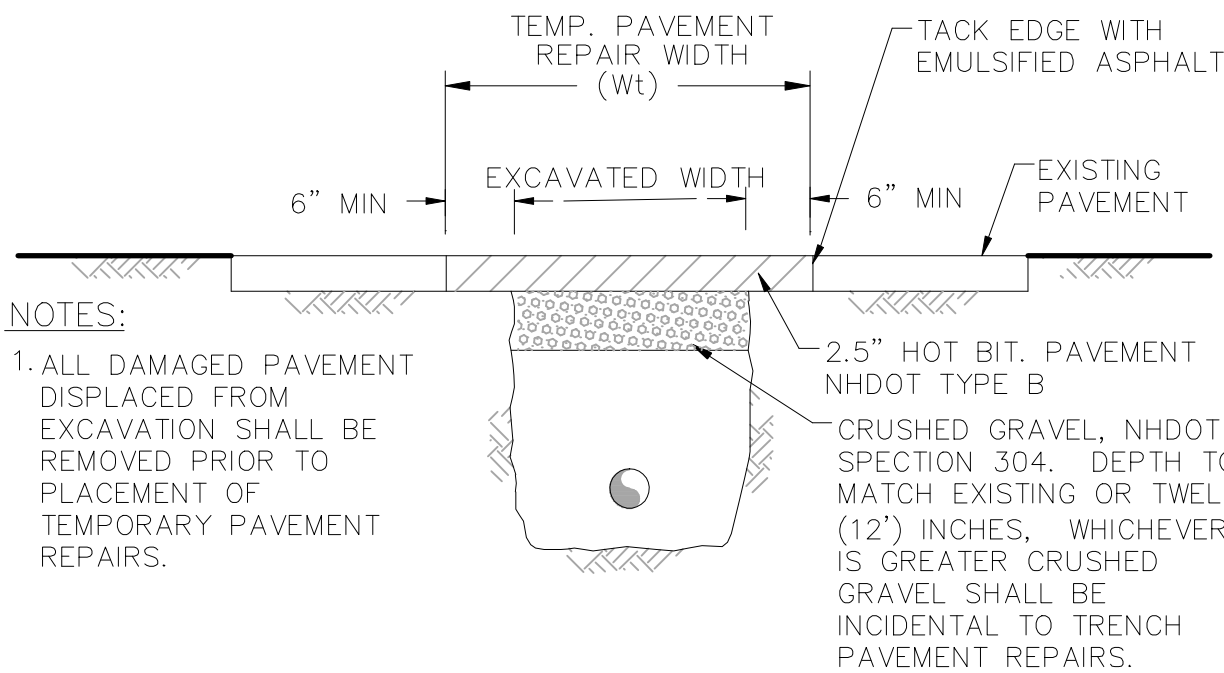
STANDARD MANHOLE NOTES:

- IT IS THE INTENTION THAT THE MANHOLE, INCLUDING ALL COMPONENT PARTS, HAVE ADEQUATE SPACE, STRENGTH, AND LEAKPROOF QUALITIES CONSIDERED NECESSARY BY THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES (NHDES) FOR THE INTENDED SERVICE. SPACE REQUIREMENTS AND CONFIGURATIONS SHALL BE AS SHOWN ON THE DRAWING. MANHOLES MAY BE AN ASSEMBLY OF PRECAST SECTIONS, WITH STEEL REINFORCEMENT, IN ANY APPROVED MANHOLE. THE COMPLETE STRUCTURE SHALL BE OF SUCH MATERIAL AND QUALITY AS TO WITHSTAND LOADS OF 8 TONS (H=20 LOADING) WITHOUT FAILURE, AND TO PREVENT LEAKAGE IN EXCESS OF ONE GALLON PER DAY PER VERTICAL FOOT OF MANHOLE, CONTINUOUSLY FOR THE LIFE OF THE STRUCTURE. A PERIOD GENERALLY IN EXCESS OF 25 YEARS IS TO BE UNDERSTOOD IN BOTH CASES.
- BARRELS AND CONE SECTIONS SHALL BE PRECAST REINFORCED CONCRETE.
- PRECAST CONCRETE BARREL SECTIONS, CONES, AND BASES SHALL CONFORM TO ASTM C478.
- LEAKAGE TEST SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS. INVERT AND SHELF TO BE PLACED AFTER LEAKAGE TEST.
- INVERTS AND SHELVES: MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF PIPE AND FLOW. CARE SHALL BE TAKEN TO INSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE SEWER INVERT. INVERT BRICKS SHALL BE LAID ON EDGE. AT CHANGES IN DIRECTION, THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST POSSIBLE TANGENT TO THE CENTER LINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO AN ELEVATION OF 1" ABOVE THE HIGHEST PIPE CROWN AND SLOPE TO DRAIN TOWARD THE FLOWING THROUGH CHANNEL. UNDERLAYMENT OF INVERT AND SHELF SHALL CONSIST OF BRICK MASONRY.
- FRAMES AND COVERS: MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN US MADE AND PROVIDE A 30-INCH CLEAR OPENING. LETTER "S" OR WORD "SEWER", IN 3-INCH LETTERS SHALL BE PLAINLY CAST INTO THE CENTER OF EACH COVER.
- BEDDING: SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING ASTM C33. STONE SIZE NO. 67.

- 100% PASSING 1 INCH SCREEN
 - 0-10% PASSING #4 SIEVE
 - 90-100% PASSING 3/4 INCH SCREEN
 - 0- 5% PASSING #8 SIEVE
 - 20- 55% PASSING 3/8 INCH SCREEN
- WHERE ORDERED BY THE ENGINEER TO STABILIZE THE BASE, SCREENED GRAVEL OR CRUSHED STONE 1-1/2 INCH TO 1/2 INCH SHALL BE USED.
- SHALLOW MANHOLE: IN LIEU OF A CONE SECTION, WHEN MANHOLE IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER HAVING AN ECCENTRIC ENTRANCE AND CAPABLE OF SUPPORTING H=20 LOADS MAY BE USED.
 - FLEXIBLE JOINT: A FLEXIBLE JOINT SHALL BE PROVIDED WITHIN THE FOLLOWING DISTANCES:

- RCP AND CI PIPE - ALL SIZES - 48"
- AC AND VC PIPE - UP THROUGH 12" DIA. - 18"
- AC AND VC PIPE - LARGER THAN 12" DIA. - 36"
- DI PIPE - NONE REQUIRED
- PVC (ASTM 3034) - UP THROUGH 15" DIA. - NONE REQUIRED
- PVC (ASTM F679) - LARGER THAN 15" DIA. - 48"/60"
- PVC (ASTM F789) - ALL SIZES - 48"/60"
- ABS (ASTM D2680) - ALL SIZES - SAME AS VC ABOVE.

10. SPECIFICATIONS: ADDITIONAL CONSTRUCTION SPECIFICATIONS ARE INCLUDED IN THE PROJECT MANUAL. THESE STANDARD MANHOLE DRAWINGS ARE NOT COMPLETE WITHOUT THESE SPECIFICATIONS.

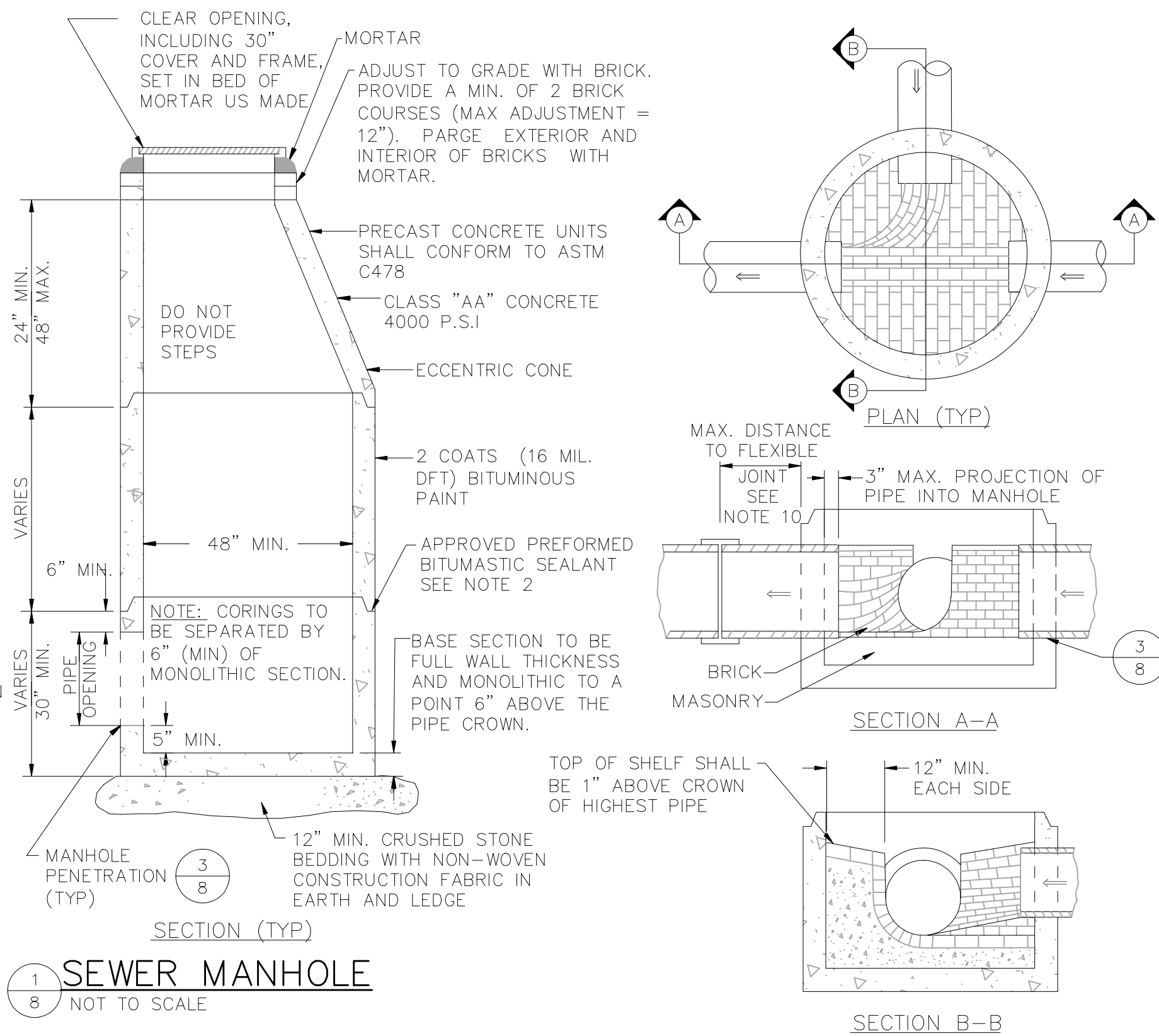


TEMPORARY TRENCH PAVEMENT REPAIR
NOT TO SCALE

MINIMUM TRENCH PAVEMENT WIDTHS

PIPE I.D.	Wt (INCHES)	Wp (INCHES)
1-21 INCHES	72	108
24-30 INCHES	84	120
> 30 INCHES	96	132

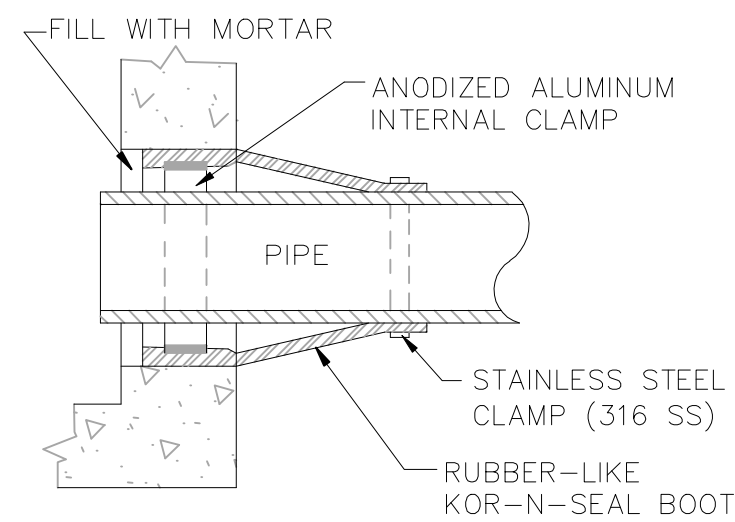
NOTE:
THE DIMENSIONS SHOWN SHALL BE CONSIDERED MINIMUM PAVEMENT PAYMENT WIDTHS FOR 0-10' DEEP CONSTRUCTION. Wt AND Wp SHALL BE INCREASED BY 4'-0" FOR TRENCHES 10' TO 15' AND BY 8'-0" FOR TRENCHES 15' TO 20' IN DEPTH.



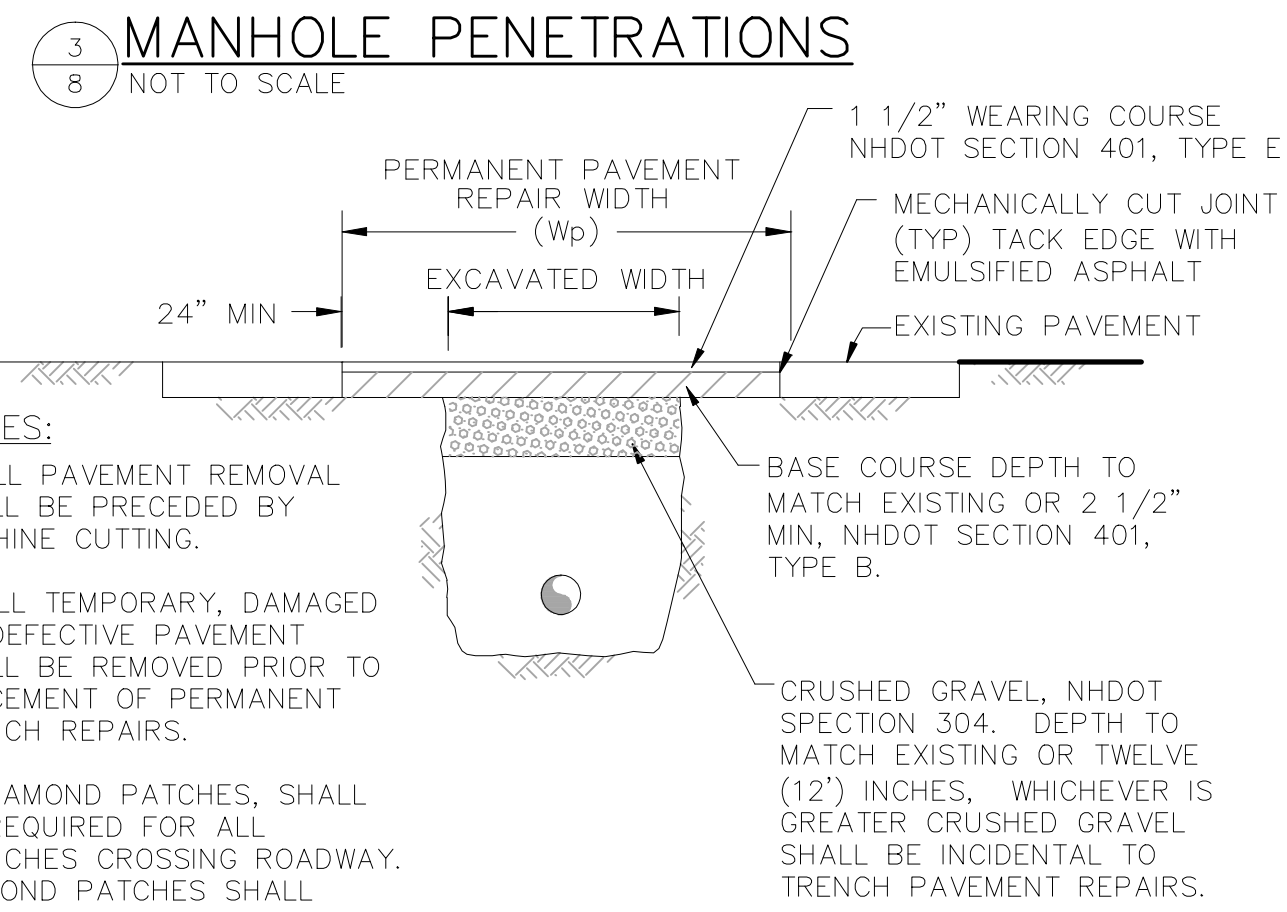
SEWER MANHOLE
NOT TO SCALE

JOINTING AND SEALING NOTES

- PIPE TO MANHOLE JOINTS SHALL BE ONLY AS APPROVED BY THE ENGINEER AND IN GENERAL, WILL DEPEND UPON AN ELASTOMERIC SEALANT FOR WATERTIGHTNESS.
- FOR BITUMASTIC TYPE JOINTS THE AMOUNT OF SEALANT SHALL BE SUFFICIENT TO FILL AT LEAST 75% OF THE JOINT CAVITY. APPROVED BITUMASTIC SEALANTS: RAM-NEK, E, Z, KENT SEAL NO.2
- ALL GASKETS, SEALANTS, MORTAR, ETC., SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS WRITTEN INSTRUCTIONS.
- NON-SHRINK GROUT MAY BE SUBSTITUTED FOR DRAINAGE MANHOLE CONNECTIONS



KOR-N-SEAL JOINT SLEEVE
(OR EQUAL)



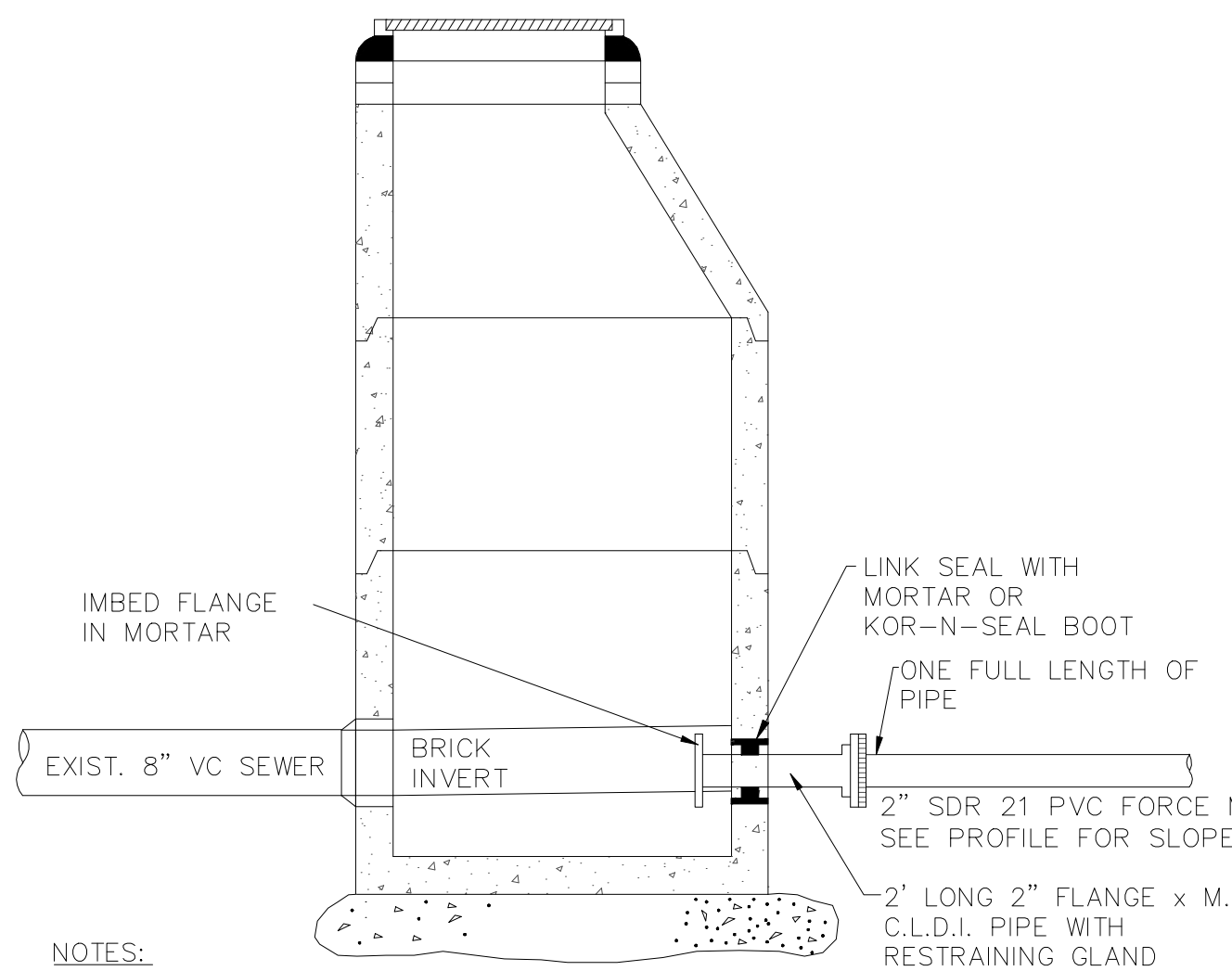
MANHOLE PENETRATIONS
NOT TO SCALE

- NOTES:
- ALL PAVEMENT REMOVAL SHALL BE PRECEDED BY MACHINE CUTTING.
 - ALL TEMPORARY, DAMAGED OR DEFECTIVE PAVEMENT SHALL BE REMOVED PRIOR TO PLACEMENT OF PERMANENT TRENCH REPAIRS.
 - DIAMOND PATCHES, SHALL BE REQUIRED FOR ALL TRENCHES CROSSING ROADWAY. DIAMOND PATCHES SHALL MEET NHDOT REQUIREMENTS.

PERMANENT TRENCH PAVEMENT REPAIR
NOT TO SCALE

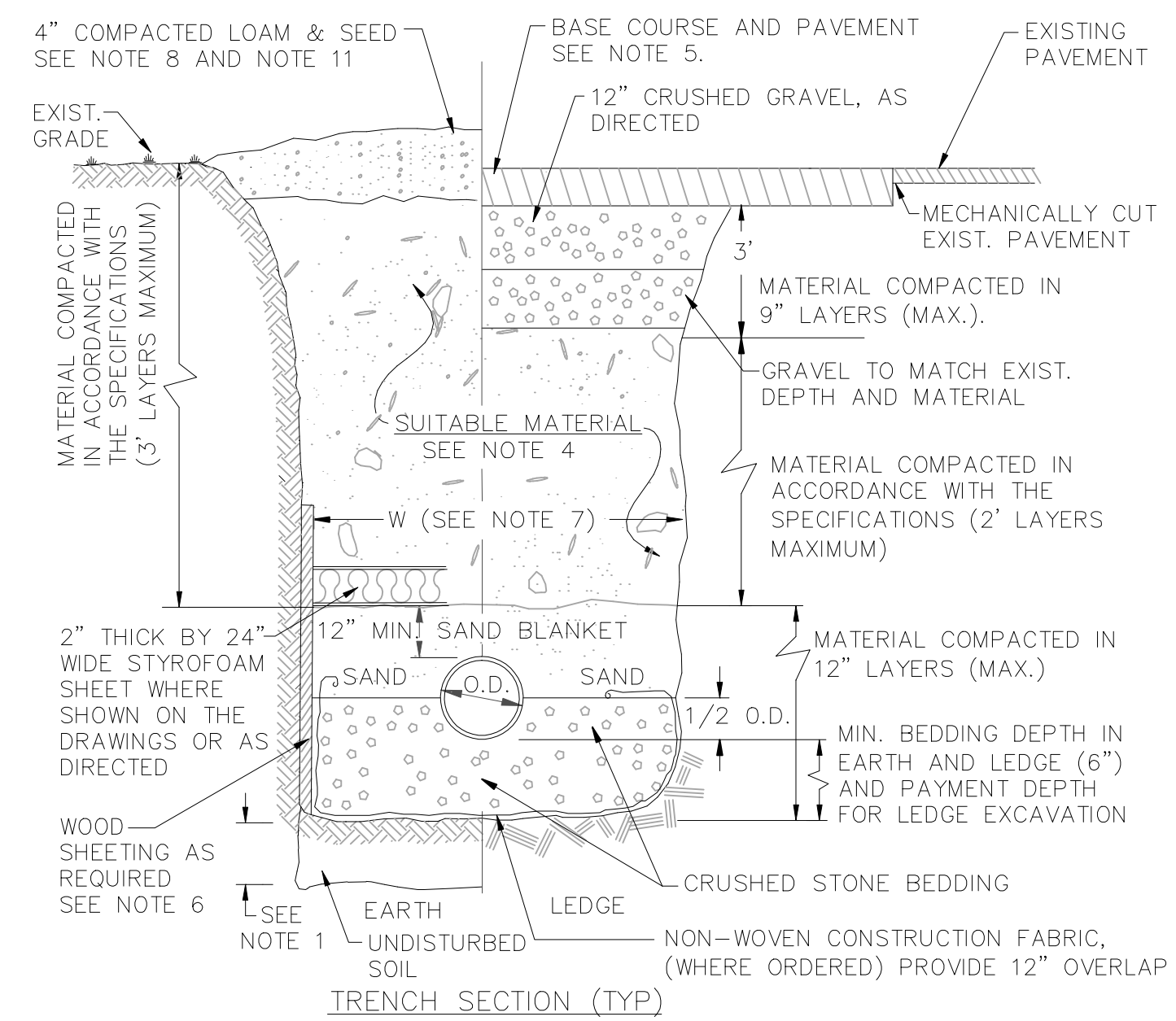
GRAVITY SEWER TRENCH NOTES:

- ORDERED EXCAVATION OF UNSUITABLE MATERIAL BELOW GRADE: BACKFILL AS STATED IN THE TECHNICAL SPECIFICATIONS OR AS SHOWN ON THE DRAWINGS.
- BEDDING: SEE NOTE 7 OF STANDARD MANHOLE NOTES. WHERE ORDERED BY THE ENGINEER TO STABILIZE THE TRENCH BASE, GRADED SCREENED GRAVEL OR CRUSHED STONE 1/2 INCH TO 1-1/2 INCH SHALL BE USED.
- SAND BLANKET: CLEAN SAND FREE FROM ORGANIC MATTER, SO GRADED THAT 90-100% PASSES A 1/2 INCH SIEVE AND NOT MORE THAN 15% WILL PASS A #200 SIEVE. BLANKET MAY BE OMITTED FOR CAST-IRON, DUCTILE IRON, AND REINFORCED CONCRETE PIPE PROVIDED HOWEVER, THAT NO STONE LARGER THAN 2" IS IN CONTACT WITH THE PIPE.
- SUITABLE MATERIAL: IN ROADS, ROAD SHOULDERS, WALKWAYS AND TRAVELED WAYS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER; TOP SOIL; ALL WET OR SOFT MUCK, PEAT, OR CLAY; ALL EXCAVATED LEDGE MATERIAL; ALL ROCKS OVER 6 INCHES IN LARGEST DIMENSION; AND ANY MATERIAL WHICH, AS DETERMINED BY THE ENGINEER, WILL NOT PROVIDE SUFFICIENT SUPPORT OR MAINTAIN THE COMPLETED CONSTRUCTION IN A STABLE CONDITION. IN CROSS-COUNTRY CONSTRUCTION, SUITABLE MATERIAL SHALL BE AS DESCRIBED ABOVE, EXCEPT THAT THE ENGINEER MAY PERMIT THE USE OF TOP SOIL, LOAM, MUCK, OR PEAT, IF HE IS SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE AND PROVIDED THAT EASY ACCESS TO THE SEWER, FOR MAINTENANCE AND POSSIBLY RECONSTRUCTION, WILL BE PRESERVED.
- BASE COURSE AND PAVEMENT SHALL MEET THE REQUIREMENTS OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION'S LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES - DIVISIONS 300 AND 400 RESPECTIVELY.
- WOOD SHEETING, IF REQUIRED: WHERE SHEETING IS PLACED ALONGSIDE THE PIPE AND EXTENDS BELOW MID-DIAMETER, IT SHALL BE CUT OFF AND LEFT IN PLACE TO AN ELEVATION 1 FOOT ABOVE THE TOP OF PIPE. WHERE SHEETING IS ORDERED BY THE ENGINEER TO BE LEFT IN PLACE, IT SHALL BE CUT OFF AT LEAST 3 FEET BELOW FINISHED GRADE, BUT NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE.
- W = MAXIMUM ALLOWABLE TRENCH PAYMENT WIDTH FOR LEDGE EXCAVATION AND FOR ORDERED EXCAVATION BELOW GRADE. FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, W SHALL BE NO MORE THAN 36 INCHES. FOR PIPES GREATER THAN 15 INCHES IN NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS PIPE OUTSIDE DIAMETER (O.D.). ALSO, W SHALL BE THE PAYMENT WIDTH.
- FOR CROSS COUNTRY CONSTRUCTION, BACKFILL OR FILL SHALL BE MOUND TO A HEIGHT OF 6 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
- CONCRETE FOR ENCASEMENT SHALL CONFORM TO THE REQUIREMENTS OF SECTION 520, (NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION).
- CONCRETE FULL ENCASEMENT: IF FULL ENCASEMENT IS UTILIZED, DEPTH OF CONCRETE BELOW PIPE SHALL BE 1/4 I.D. (4" MINIMUM). BLOCK SUPPORT SHALL BE SOLID CONCRETE BLOCKS.
- GRAVEL DRIVEWAY AND SHOULDER RESTORATION: CRUSHED GRAVEL IN DRIVEWAYS AND ROAD SHOULDERS SHALL MATCH EXISTING WITH A MINIMUM OF 12". GRAVEL REPLACEMENT SHALL BE SUBSIDIARY TO SEWER CONSTRUCTION AND WILL NOT BE MEASURED FOR PAYMENT.



- NOTES:
- FIELD CORE MANHOLE, 2-INCH FM INV TO BE 1" HIGHER THAT EXIST INVERT OUT. FIELD CORE AND FORCEMAIN CONNECTION, SUBSIDIARY.
 - MANHOLE MASONRY TO BE RE-CONSTRUCTED TO FACILITATE FORCEMAIN CONNECTION.

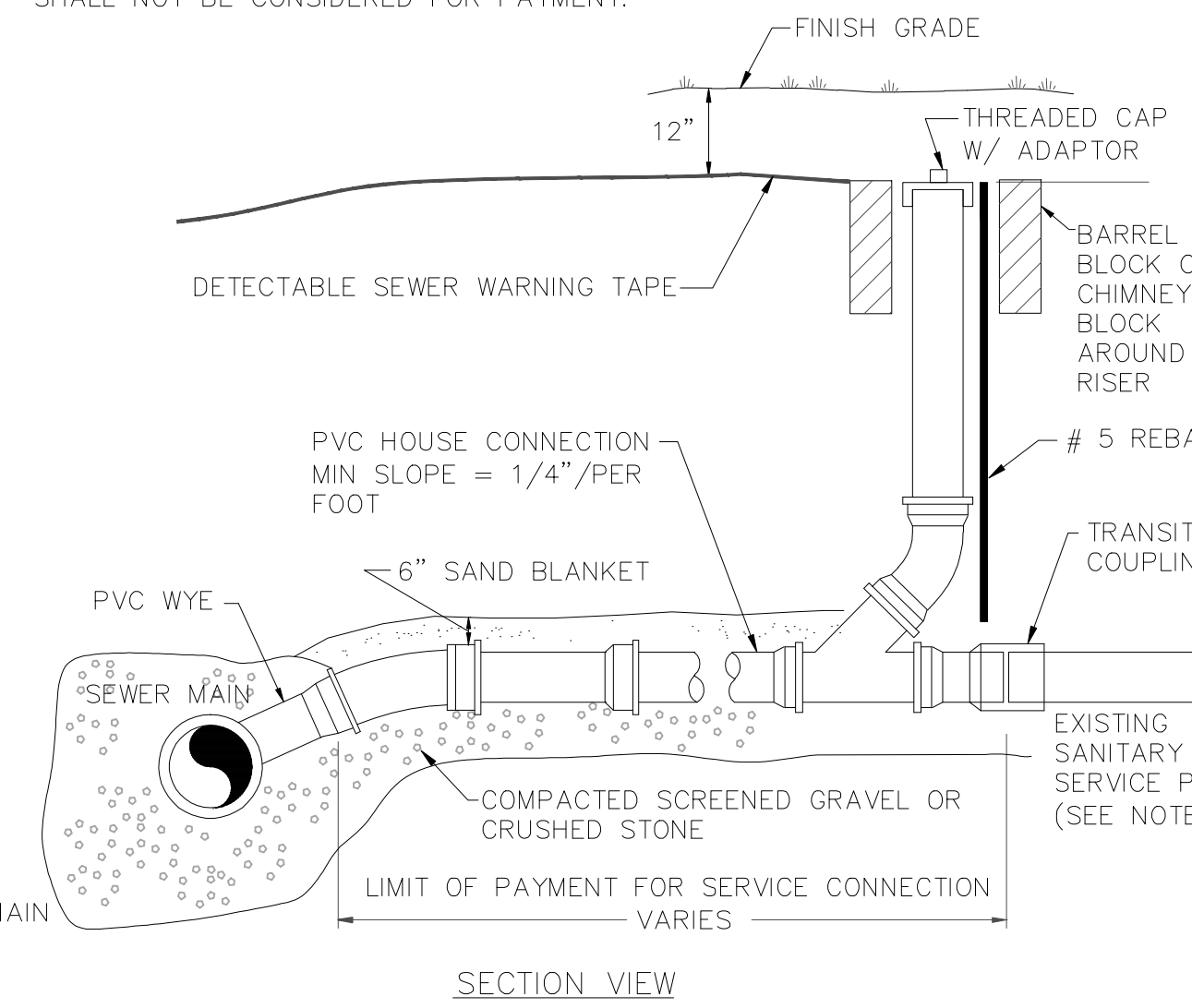
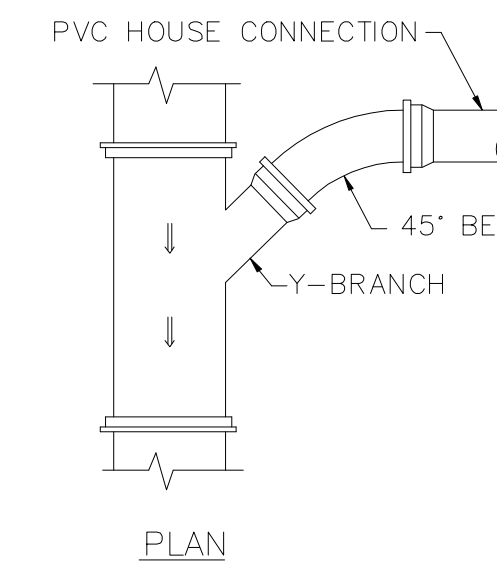
FORCEMAIN CONNECTION
NOT TO SCALE



TRENCH DETAIL- GRAVITY SEWER
NOT TO SCALE

NOTES:

- ALL SEWER SERVICE EXTENSIONS SHALL BE 4" OR 6", DEPENDING ON SIZE OF EXISTING LATERAL PIPING. CONTRACTOR SHALL VERIFY EXISTING SEWER SERVICE LOCATION AND ELEVATION BY EXCAVATION OF TEST PITS PRIOR TO THE CONSTRUCTION OF SEWER MAIN.
- SERVICE CONNECTION SHALL BE INSTALLED BELOW WATER MAIN WHERE POSSIBLE.
- VARIOUS SIZE TRANSITION COUPLINGS SHALL BE STORED ON SITE FOR CONNECTION TO EXISTING SERVICES.
- CLEANOUTS SHALL BE INSTALLED AT EACH LIVE SEWER SERVICE CONNECTION, AS SHOWN ON THIS PLAN. REBAR SHALL BE PLACED AT SIDE OF CLEANOUT.
- CLEANOUT SHALL BE USED TO PLUG AND TEST ALL NEW LATERALS WITH MINIMAL INTERRUPTION TO OPERATION OF HOMEOWNER SANITARY SYSTEM. CLEANOUTS SHALL BE INCIDENTAL TO SERVICE CONNECTIONS AND SHALL NOT BE CONSIDERED FOR PAYMENT.



TYPICAL SERVICE CONNECTION
NOT TO SCALE



DEPARTMENT OF
PUBLIC WORKS
CITY OF PORTSMOUTH

SEWER DETAILS
OF
McDONOUGH STREET AREA
PHASE 2
PORTSMOUTH, NEW HAMPSHIRE

DRAWING_SCALE_NONE 1/23/10