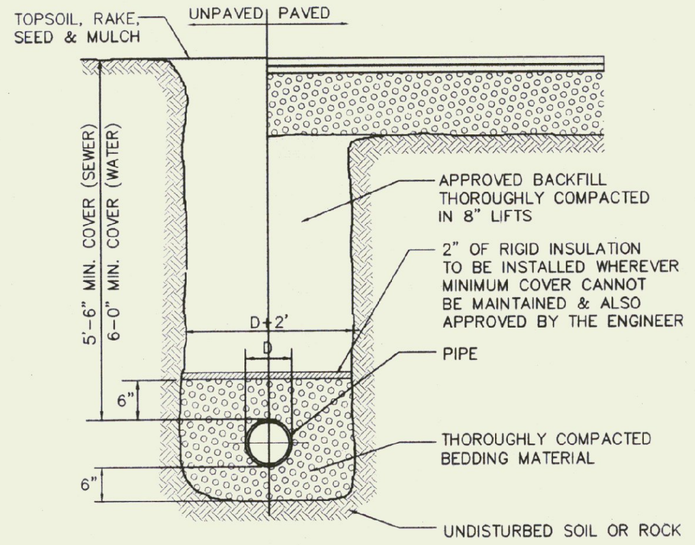
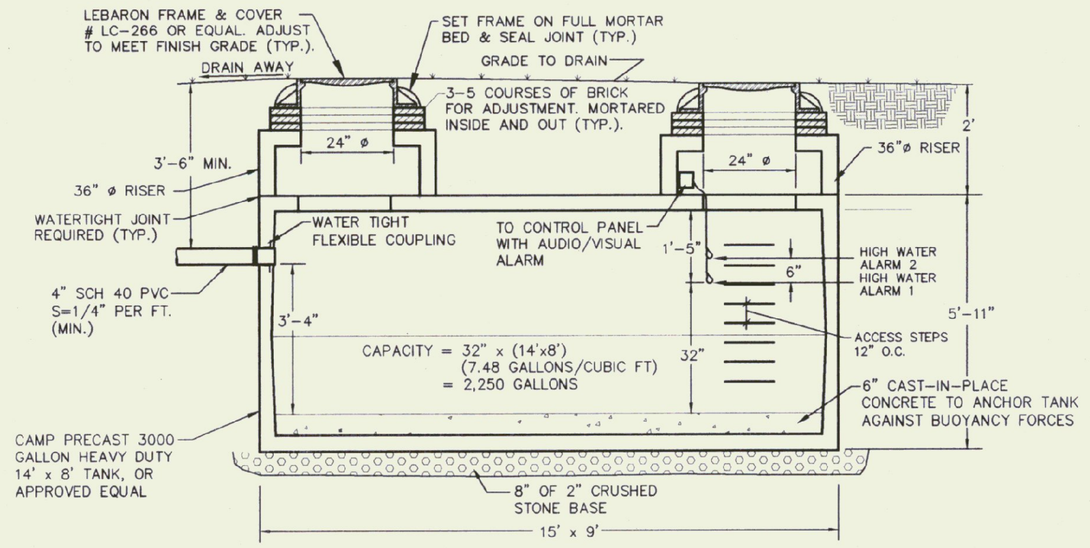


NOTES:

1. Typical trench for water, sewer, and drainage pipe.
2. Compaction of backfill and bedding shall be a minimum of 90% (95% under roadway surfaces) of maximum dry density determined in the standard proctor test (ASTM D698).
3. Bedding material shall not be placed on frozen subgrade.
4. Approved backfill shall not contain any stones more than 6" in largest dimension, 2" maximum diameter within 2' of the outside of the pipe, or any frozen, or organic material.
5. Trenches shall be completely dewatered prior to placing of pipe bedding material and kept dewatered during installation of pipe and backfill.
6. The sides of trenches 4' or more in depth entered by personnel shall be sheeted or sloped to the angle of repose as defined by O.S.H.A. standards.
7. Bedding material for wastewater lines shall consist of crushed stone or gravel with maximum size of 3/4".

TYPICAL TRENCH DETAIL

N.T.S.



3000 GALLON HOLDING TANK WITH CONCRETE BALLAST

N.T.S.

PROVIDE A NEMA 4 CONTROL PANEL LOCATED ON SIDE OF BUILDING. COORDINATE WIRING/LOCATION WITH ELECTRICAL PLANS

HOLDING TANK TESTING

A. The holding tank shall be tested by the following procedure:

1. Exfiltration Leakage Test: All pipes and other openings into the tank shall be suitably plugged and the plugs braced to prevent blowout.

   The tank shall then be filled with water to the top of the riser section. A period of time may be permitted, if the Contractor so wishes, to allow for absorption. At the end of this period, the tank shall be refilled to the top of the riser, if necessary, and the measuring time of at least four hours begun. At the end of the test period, the tank shall be refilled to the top of the riser, measuring the volume of water added. This amount shall be converted to gallons per vertical foot depth for 24 hours. The leakage for each tank shall not exceed four gallon/vertical foot/day. If leakage exceeds the allowable rate, repairs shall be made as approved by the Engineer and the tank retested.

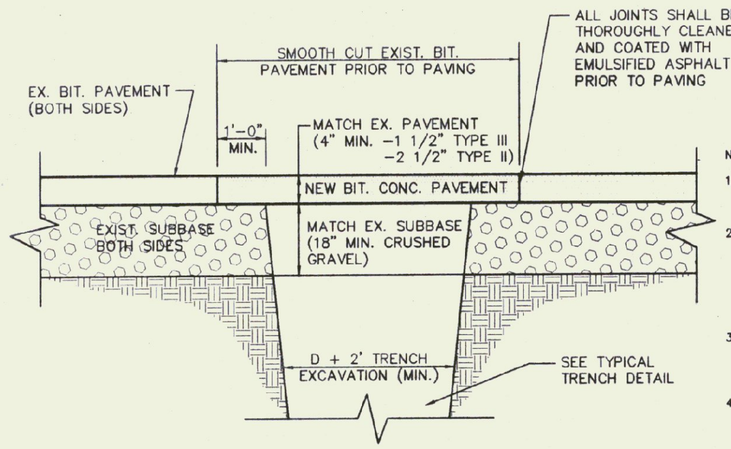
   If the Contractor elects to backfill prior to testing, the testing shall be at his own risk, and it shall be incumbent upon the Contractor to determine the reason for any failure of the test. No adjustment in the leakage allowance will be made for unknown causes such as leaking plugs, absorption, etc. It will be assumed that all loss of water during the test is a result of leaks through the joints or the concrete. Furthermore, the Contractor shall take any steps necessary to assure the Engineer that the water table is below the bottom of the tank throughout the test.

HOLDING TANK YEARLY INSPECTION

The State of Vermont "Environmental Protection Rules, Wastewater System and Potable Water Supply Rules", sections 1-522(f) & (g) requires yearly inspections and reporting for the holding tank as follows:

Section (f) Any permit issued for the use of a holding tank will require a designer to periodically inspect the tank, visible piping, and alarms. The designer shall submit a written report to the Secretary detailing the results of the inspection and any repairs or changes in operation that are required. The report shall also detail the pumping history since the previous report, giving the dates of pumping and the volume of wastewater removed. The frequency of inspections and reports shall be stated in the permit issued for the use of the tank, but shall be no less frequent than once per year. The designer shall also inspect the water meter or meters and verify that they are installed, calibrated, and measuring all water that is discharged as wastewater. The designer shall read the meters and compare the metered flow to the pumping records. Any significant deviation shall be noted in the report and explained to the extent possible.

Section (g) The owner of a holding tank shall maintain a valid contract with a licensed wastewater hauler at all times. The contract shall require the licensed wastewater hauler to provide written notice of dates of pumping and volume of wastewater pumped. Copies of all such notices shall be submitted with the written inspection reports.

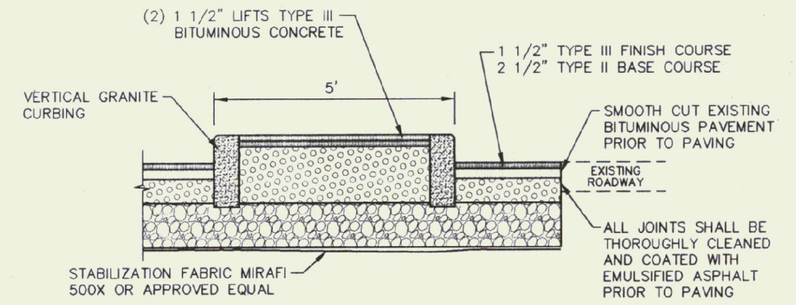


NOTES:

1. THE CONTRACTOR SHALL MAINTAIN AT LEAST ONE-WAY TRAFFIC AT ALL TIMES DURING WORK WITHIN THE R.O.W.
2. MAINTENANCE AND PROTECTION OF TRAFFIC DURING WORK WITHIN THE HIGHWAY R.O.W. SHALL BE PROVIDED IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. THE CONTRACTOR SHALL NOT WORK WITHIN THE R.O.W. WITHOUT APPROPRIATE CONSTRUCTION SIGNING IN PLACE.
3. ALL BACKFILL SHALL BE MADE IN SIX (6") LIFTS AND COMPACTED TO NOT LESS THAN 95% MAXIMUM DRY DENSITY ACCORDING TO ASTM D698.
4. REPLACE EXISTING ROAD STRIPING AS NECESSARY.

REPLACEMENT OF EXIST. PAVEMENT

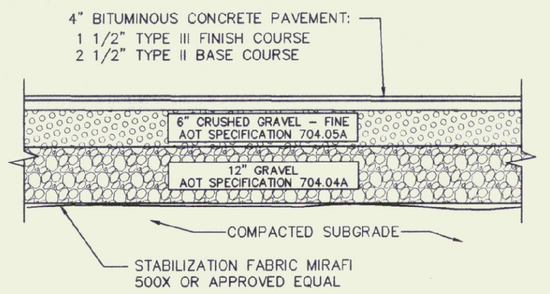
NTS



1. INSTALL VERTICAL GRANITE CURBING IN ACCORDANCE WITH AOT SPECIFICATION SECTION 616 AND STANDARD DRAWING C-1.

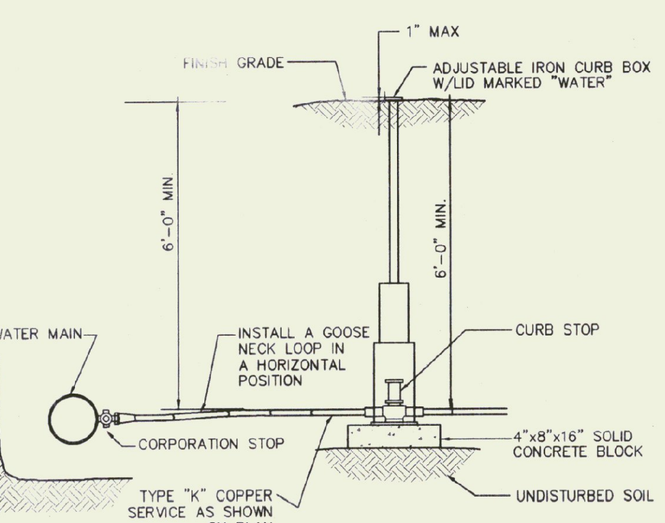
BITUMINOUS CONCRETE ISLAND DETAIL

N.T.S.



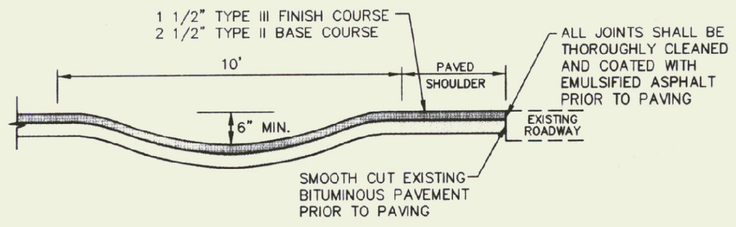
TYPICAL PAVEMENT SECTION

N.T.S.



WATER SERVICE CONNECTION

N.T.S.



BITUMINOUS CONCRETE GUTTER DETAIL

N.T.S.

BUILDING BACKFILL

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Building perimeter and site structure backfilling to subgrade elevations.
2. Fill under slabs on grade.
3. Consolidation and compaction.
4. Fill for over-excavation.

1.02 REFERENCES

A. ANSI/ASTM C136 - Method for Sieve Analysis of Fine and Coarse Aggregates

B. ANSI/ASTM D698 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures using 5.5 pound rammer and 12 inch drop.

1.03 SUBMITTALS

A. Testing laboratory reports indicating that material for backfill under structure meets requirements of this Section.

B. Field density test reports of backfill in place.

PART 2 - PRODUCTS

2.01 FILL MATERIALS

A. Structural Fill (Crushed Gravel, AOT Spec. 704.05A, Fine): Free of shale, clay, friable material, sand, debris; graded in accordance with ANSI/ASTM C136 within the following limits:

Sieve Size	Percent Passing
2"	100
1 1/2"	90 - 100
No. 4	30 - 60
No. 100	0 - 12
No. 200	0 - 6

B. Compacted Fill/Granular Backfill: Free of shale, clay, friable material, debris, and organic matter, graded in accordance with ANSI/ASTM C136 within the following limits:

Sieve Size	Percent Passing
3"	100
3/4"	75 - 100
No. 4	20 - 100
No. 100	0 - 20
No. 200	0 - 6

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify fill materials to be reused are acceptable.

B. Verify underground tanks are anchored to their own foundation to avoid floatation after backfilling.

3.02 PREPARATION

A. Generally, compact subgrade to density requirements for subsequent backfill materials.

B. Cut out soft areas of subgrade not capable of insitu compaction. Backfill with crushed gravel fill and compact to density equal to or greater than requirements for subsequent backfill material.

C. Prior to placement of aggregate base course material, compact subsoil to 95 percent of its maximum dry density in accordance with ANSI/ASTM D698.

3.03 BACKFILLING

A. Backfill areas to contours and elevations with unfrozen materials.

B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.

C. Place geotextile fabric as shown in the plans.

D. Granular Backfill: Place and compact materials in continuous layers not exceeding 8 inches compacted depth.

E. Employ a placement method that does not disturb or damage foundation perimeter drainage and utilities in trenches.

F. Maintain optimum moisture content of backfill materials to attain required compaction density.

G. Backfill against supported foundation walls: Do not backfill against unsupported foundation walls. No backfill material shall be placed against a newly completed structure until the concrete has been cured for 7 days.

H. Backfill simultaneously on each side of unsupported foundation walls until supports are in place.

I. Slope grade away from building a minimum of ¼ inch per foot, or as shown in plans, unless noted otherwise.

J. Make grade changes gradual. Blend slope into level areas.

3.04 TOLERANCES

A. Surface of fill under building slabs shall be graded smooth and even, free of voids, compacted as specified, and to the required elevation. Fill shall be final graded to within a tolerance of ½" when tested with a 10' straight edge.

3.05 FIELD QUALITY CONTROL

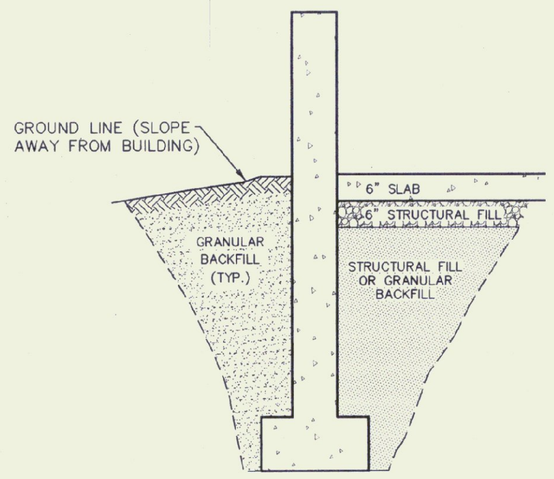
A. Compaction Requirements: Standard Proctor/ASTM D698.

B. If tests indicate Work does not meet specified requirements, remove Work, replace and retest at no cost to Owner.

3.06 SCHEDULE

All backfills to be placed in 8" (Maximum) lifts, compacted as specified below:

LOCATION	MATERIAL	% COMPACTION STANDARD PROCTOR ASTM D-698
Under Footings	Undisturbed Native Material; or Structural Fill	-- 98%
Interior Slab-on-Grade	Structural Fill	95%
Interior, Adjacent to Foundation Walls	Structural Fill; or Granular Backfill	95% 95%
Exterior, Adjacent to Foundation Walls	Structural Fill; or Granular Backfill	90% 90%



TYPICAL FOUNDATION BACKFILL SECTION

N.T.S.

SITE ENGINEER:

CIVIL ENGINEERING ASSOCIATES, INC.
P.O. BOX 485 SHELBURNE, VT 05482
802-985-2323 FAX: 802-985-2271 web: www.cea-vt.com

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DRAWN PJM
CHECKED BCE
APPROVED BCE

OWNER:

STATE OF VERMONT
DEPARTMENT OF BUILDINGS AND GENERAL SERVICES
MONTPELIER, VERMONT

PROJECT:

MONTGOMERY GARAGE and SALT SHED
VT ROUTE 118
MONTGOMERY, VERMONT

DATE	CHECKED	REVISION
2/2003	BCE	UTILITIES SECTION REVISIONS.
4/30/03	BCE	ADDED BACKFILL SECTION AND NOTES.
5/27/03	BCE	REVISED BITUM. CONC. ISLAND DETAIL TO INCLUDE VERT. GRANITE CURB.

SITE DETAILS

DATE JAN., 2003
SCALE AS SHOWN
PROJ. NO. 01309.02
DRAWING NUMBER C3

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