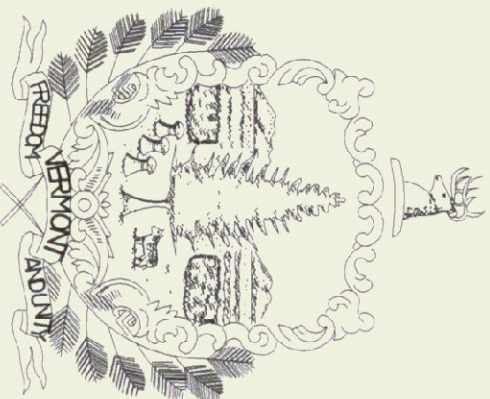


State of Vermont  
Department of Buildings & General Services  
  
NEW HANGER BUILDING  
& SITE IMPROVEMENTS  
MIDDLEBURY STATE AIRPORT  
  
Middlebury, Vermont

AGENCY OF ADMINISTRATION  
DEPT. OF BUILDINGS & GENERAL SERVICES  
2 GOVERNOR AIKEN AVENUE  
MONTPELIER, VERMONT 05633-5801  
THOMAS W. TORTI, COMMISSIONER



Howard Dean, M.D.  
Governor

August 2002

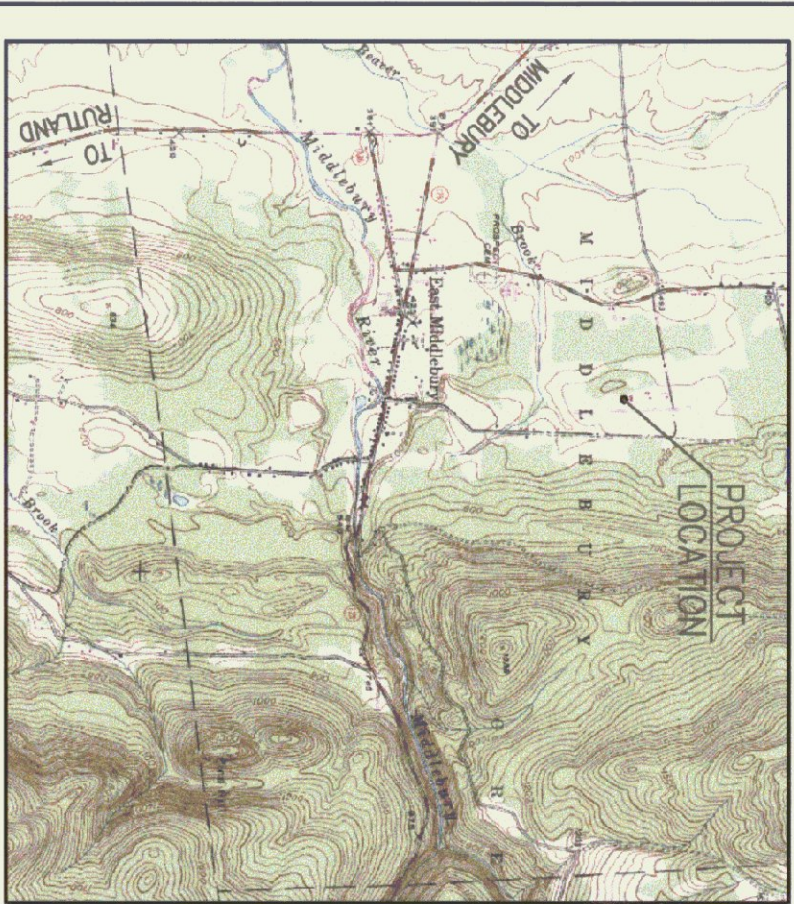
INDEX OF SHEETS (SECTION A)

- C-1 EXISTING CONDITIONS PLAN
- C-2 PROPOSED CONDITIONS PLAN
- C-3 WASTEWATER AND SITE DETAILS
- C-4 EROSION CONTROL DETAILS
- C-5 SPECIFICATIONS
- A-1 FLOOR PLAN AND ELEVATIONS
- A-2 ARCHITECTURAL DETAILS
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- A-4 ROOF PLAN, DETAILS, SCHEDULES
- P-1 PLUMBING PLANS AND DETAILS
- M-1 MECHANICAL PLANS AND DETAILS
- M-2 MECHANICAL PLANS AND DETAILS
- E-1 ELECTRICAL PLANS AND DETAILS

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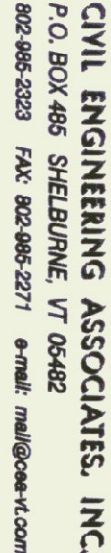
- 1 TITLE SHEET
- 2 PROJECT LAYOUT
- 3 PROJECT LAYOUT
- 4 WATERLINE DETAILS
- 5 SURVEY DATA

AGENCY OF TRANSPORTATION  
NATIONAL LIFE BUILDING  
MONTPELIER, VERMONT 05602  
BRIAN SEARLES, SECRETARY



PROJECT LOCATION





P.O. BOX 485 SHELburnE, VT 05482  
802-985-2323 FAX: 802-985-2271 e-mail: [mail@coe-vt.com](mailto:mail@coe-vt.com)

P.O. BOX 485 SHELburnE, VT 05482  
802-985-2323 FAX: 802-985-2271 e-mail: [mail@coe-vt.com](mailto:mail@coe-vt.com)

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STATE OF VERMONT

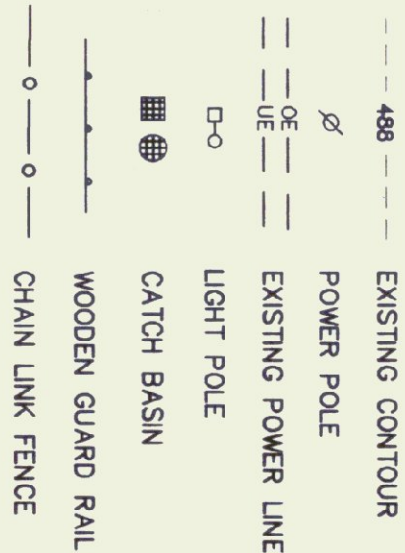
## BUILDINGS and GENERAL SERVICES

MONTPELIER, VERMONT

MIDDLEBURY  
AIRPORT

MIDDLEBURY, VERMONT

|  |     |                     |
|--|-----|---------------------|
|  | 488 | EXISTING CONTOUR    |
|  |     | POWER POLE          |
|  |     | EXISTING POWER LINE |
|  |     | LIGHT POLE          |
|  |     | CATCH BASIN         |
|  |     | WOODEN GUARD RAIL   |
|  |     | CHAIN LINK FENCE    |



| DATE | CHECKED | REVISION                                 |
|------|---------|------------------------------------------|
| 2002 | BCE     | GENERAL REVISIONS/CHANGED DRAINING SCALE |
|      |         |                                          |
|      |         |                                          |
|      |         |                                          |
|      |         |                                          |
|      |         |                                          |

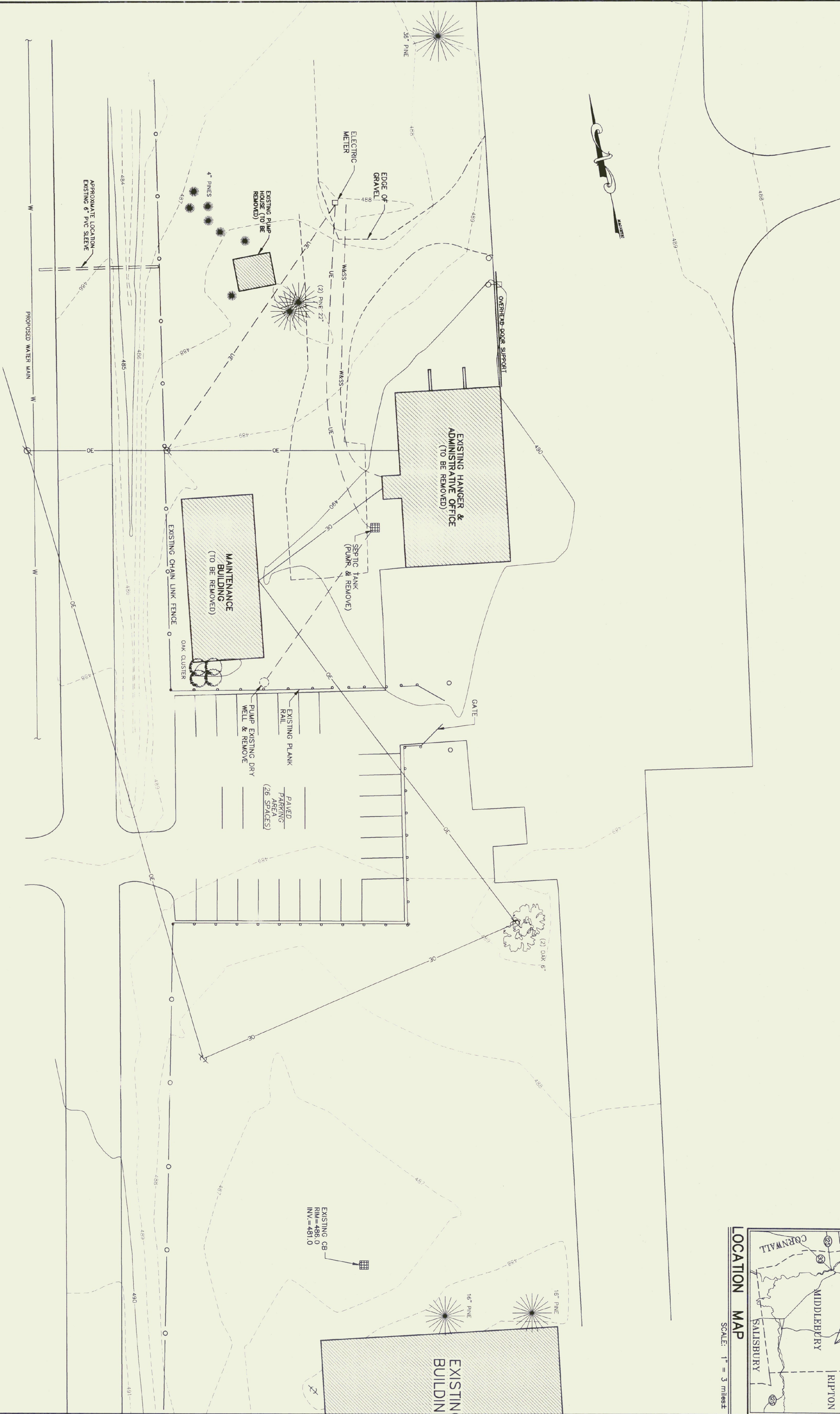
# EXISTING CONDITIONS PLAN

DATE 12/21/2001

DRAWING NUMBER:

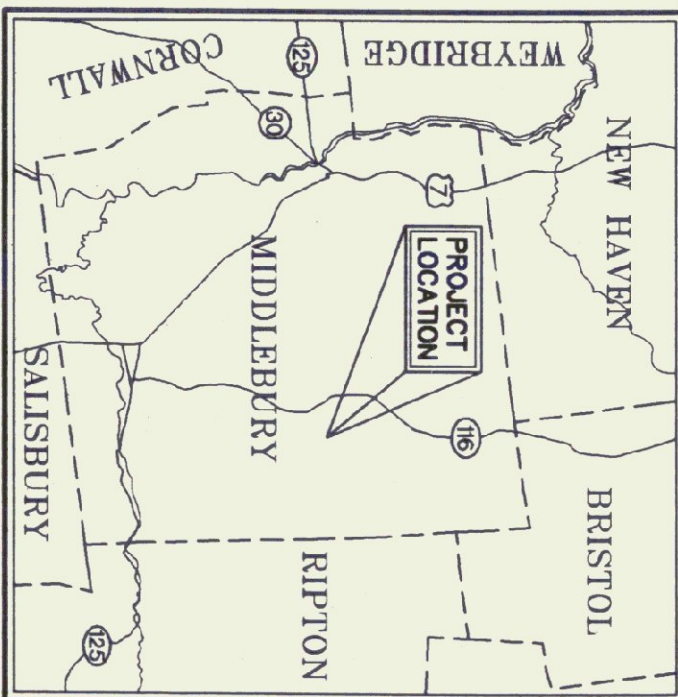
20' 5"

20' 5"



## LOCATION MAP

SCALE: 1" = 3 miles



GRAPHIC SCALE



1 inch = 20 ft

**NOTE:**

1. UTILITIES SHOWN DO NOT PURPORT TO CONSTITUTE OR REPRESENT ALL UTILITIES LOCATED UPON OR ADJACENT TO THE SURVEYED PREMISES. EXISTING UTILITY LOCATIONS ARE APPROXIMATE ONLY.



SITE ENGINEER:



CIVIL ENGINEERING ASSOCIATES, INC.  
P.O. BOX 485 SHELBAURNE, VT 05482  
802-885-2233 FAX: 802-885-2877 e-mail: mae@cae-ct.com



OWNER:

STATE OF VERMONT  
BUILDINGS and  
GENERAL SERVICES  
MONTPELIER, VERMONT

PROJECT:

MIDDLEBURY  
AIRPORT  
MIDDLEBURY, VERMONT

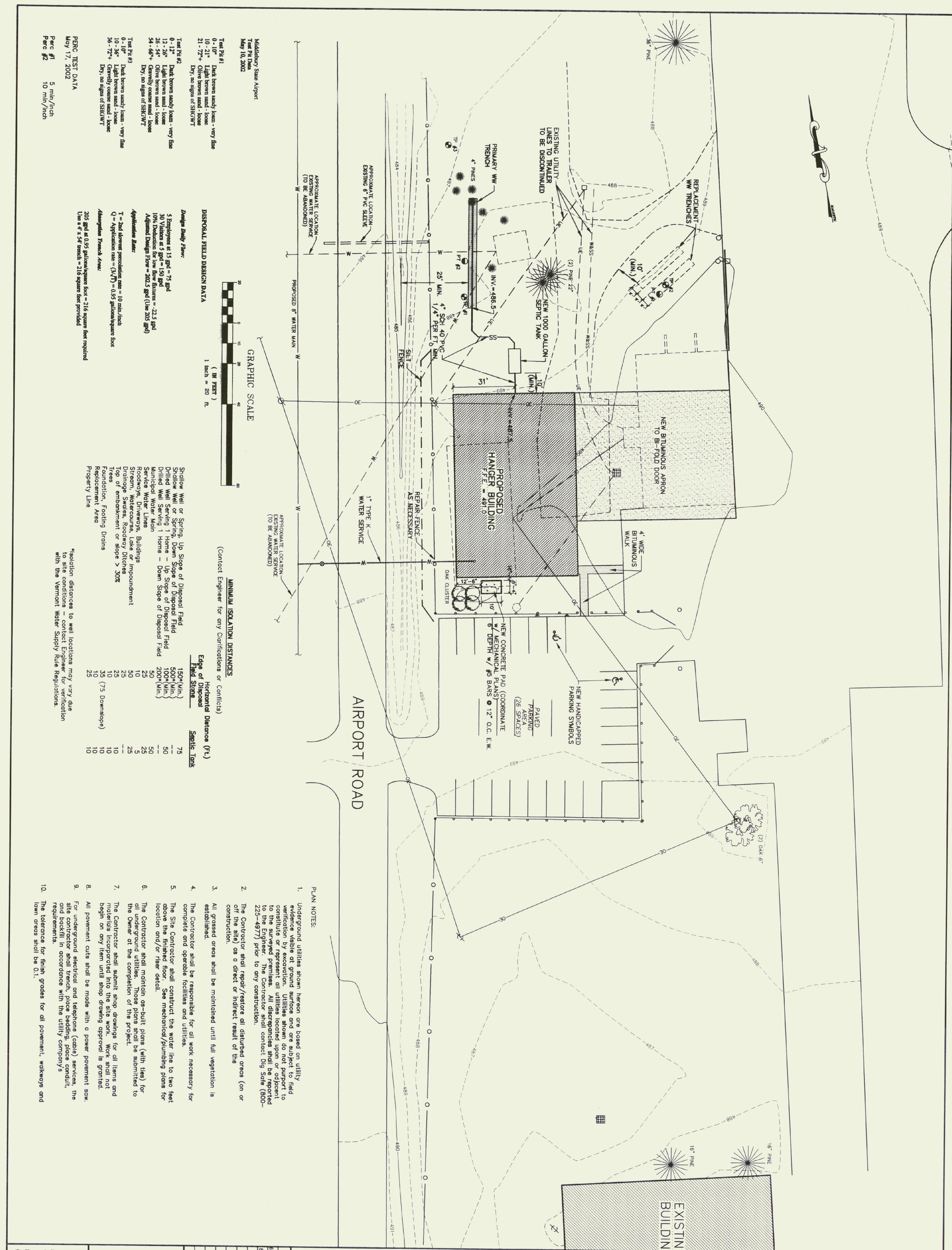
LEGEND

- 488 --- EXISTING CONTOUR
- Ø --- POWER POLE
- UE --- EXISTING POWER LINES
- D-O --- LIGHT POLE
- --- CATCH BASIN
- W --- WOODEN GUARD RAIL
- CHAIN LINK FENCE
- SS --- PROPOSED WATER SERVICE
- TP #1 --- PROPOSED SEWER LINE
- PT #1 --- TEST PIT LOCATION
- PT #1 --- PERC TEST LOCATION

| DATE    | CHANGED | REVISION                                                         |
|---------|---------|------------------------------------------------------------------|
| 6/27/02 | BCE     | REVISED PROPOSED WATER LINE, LOCALIZATION/EXISTING SERVICE LINES |
| 9/9/02  | BCE     | MOVED SEPTIC TANK, ADDED PAD                                     |
|         |         |                                                                  |
|         |         |                                                                  |
|         |         |                                                                  |
|         |         |                                                                  |
|         |         |                                                                  |

PROPOSED  
CONDITIONS  
PLAN

|           |          |                |    |
|-----------|----------|----------------|----|
| DATE      | 6/6/2002 | DRAWING NUMBER | C2 |
| SCALE     | T = 20'  |                |    |
| PROJ. NO. | 01309.01 |                |    |

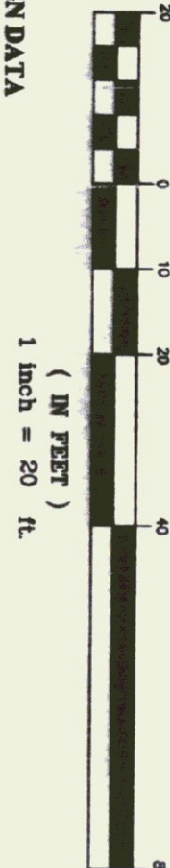


DISPOSAL FIELD DESIGN DATA

**Design Daily Flow:**  
5 Employees at 15 gpd = 75 gpd  
30 Visitors at 5 gpd = 150 gpd  
1000 Gallon Septic Tank = 22.5 gpd  
1000 Gallon Septic Tank = 22.5 gpd  
Adjusted Design Flow = 202.5 gpd (Use 200 gpd)

**Application Rate:**  
T = 2nd above percolation rate = 10 min./inch  
Q = Application rate = (3.47) = 0.35 gallons/square foot  
Absorption Trench Area:  
205 gpd at 0.35 gallons/square foot = 216 square feet required  
Use a 4' x 54' trench = 216 square feet provided

GRAPHIC SCALE



MINIMUM ISOLATION DISTANCES

| Edge of Disposal Field Slope                               | Horizontal Distance (ft.) | Septic Tank |
|------------------------------------------------------------|---------------------------|-------------|
| Shallow Well or Spring, Up Slope of Disposal Field         | 1500*(Min.)               | 75          |
| Shallow Well or Spring, Down Slope of Disposal Field       | 500*(Min.)                | 50          |
| Drilled Well Serving 1 Home - Up Slope of Disposal Field   | 100*(Min.)                | 50          |
| Drilled Well Serving 1 Home - Down Slope of Disposal Field | 200*(Min.)                | 50          |
| Municipal Water Main                                       | 50                        | 25          |
| Service Water Lines                                        | 25                        | 5           |
| Roadways, Driveways, Buildings                             | 10                        | 25          |
| Stockpiles, Storage Areas, Lake or Impoundment             | 50                        | 25          |
| Drainage Swales, Secondary Ditches                         | 25                        | 10          |
| Top of embankment or slope > 30%                           | 10                        | 10          |
| Trees                                                      | 10                        | 10          |
| Replacement Area                                           | 35 (75 Downslope)         | 10          |
| Foundation, Footing Drains                                 | 10                        | 10          |
| Property Line                                              | 10                        | 10          |

\*Isolation distances to well locations may vary due to site conditions - contact Engineer for verification with the Vermont Water Supply Rule Regulations.

PERC TEST DATA  
May 17, 2002  
Perc #1 5 min./inch  
Perc #2 10 min./inch

Middlebury State Airport  
Test Pit Data  
May 10, 2002

Test Pit #1  
0-10" Dark brown sandy loam - very fine  
10-21" Light brown sand - loose  
21-72" Olive brown sand - loose  
Dry, no signs of SHCWT

Test Pit #2  
0-12" Dark brown sandy loam - very fine  
12-26" Light brown sand - loose  
26-54" Olive brown sand - loose  
54-66" Gravelly coarse sand - loose  
Dry, no signs of SHCWT

Test Pit #3  
0-16" Dark brown sandy loam - very fine  
16-36" Light brown sand - loose  
36-72" Gravelly coarse sand - loose  
Dry, no signs of SHCWT



SITE ENGINEER:



CIVIL ENGINEERING ASSOCIATES, INC.  
P.O. BOX 466 SHELBURNE VT 05462  
802-466-2223 FAX 802-466-2271 e-mail: cm@ceai.com

|                        |  |
|------------------------|--|
| DRAWN<br><b>PJM</b>    |  |
| CHECKED<br><b>BCE</b>  |  |
| APPROVED<br><b>BCE</b> |  |

OWNER:

STATE OF VERMONT  
BUILDINGS and  
GENERAL SERVICES  
MONTPELIER, VERMONT

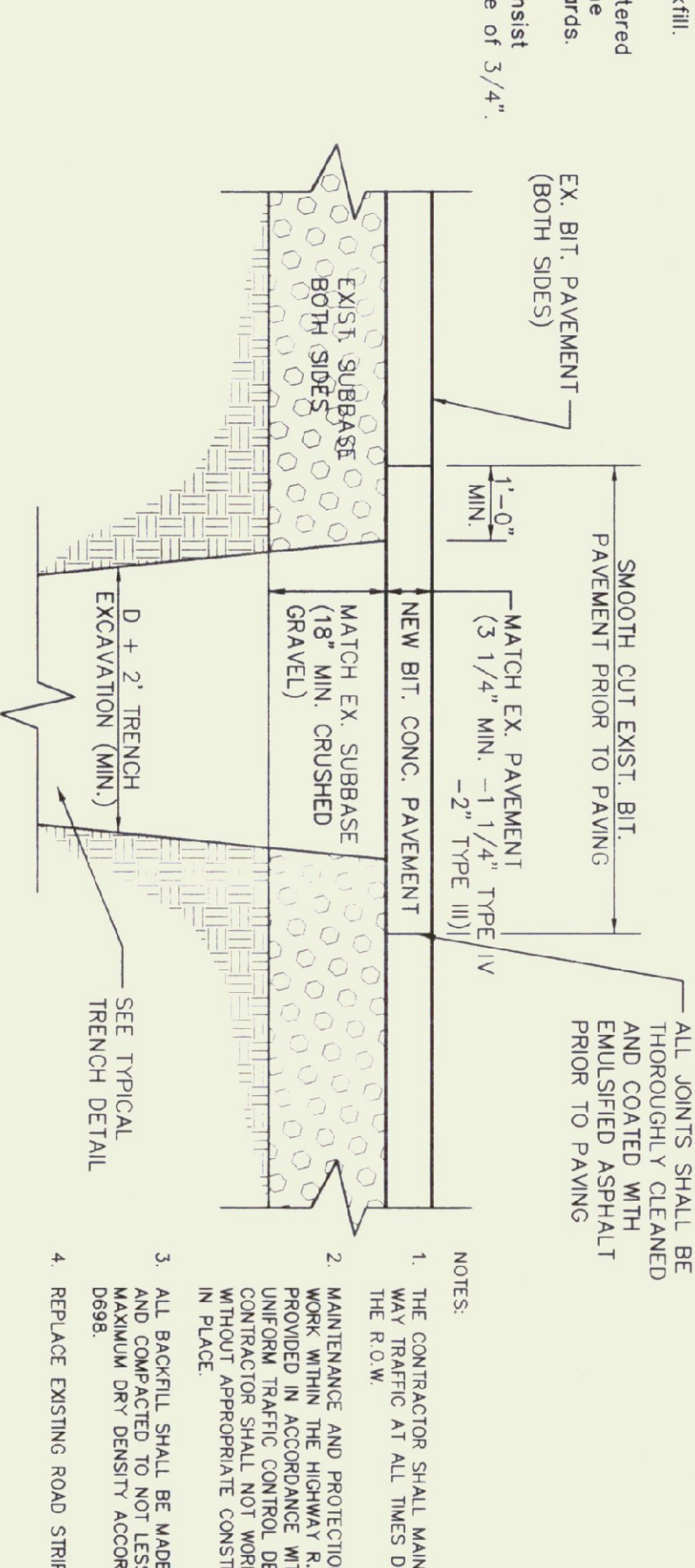
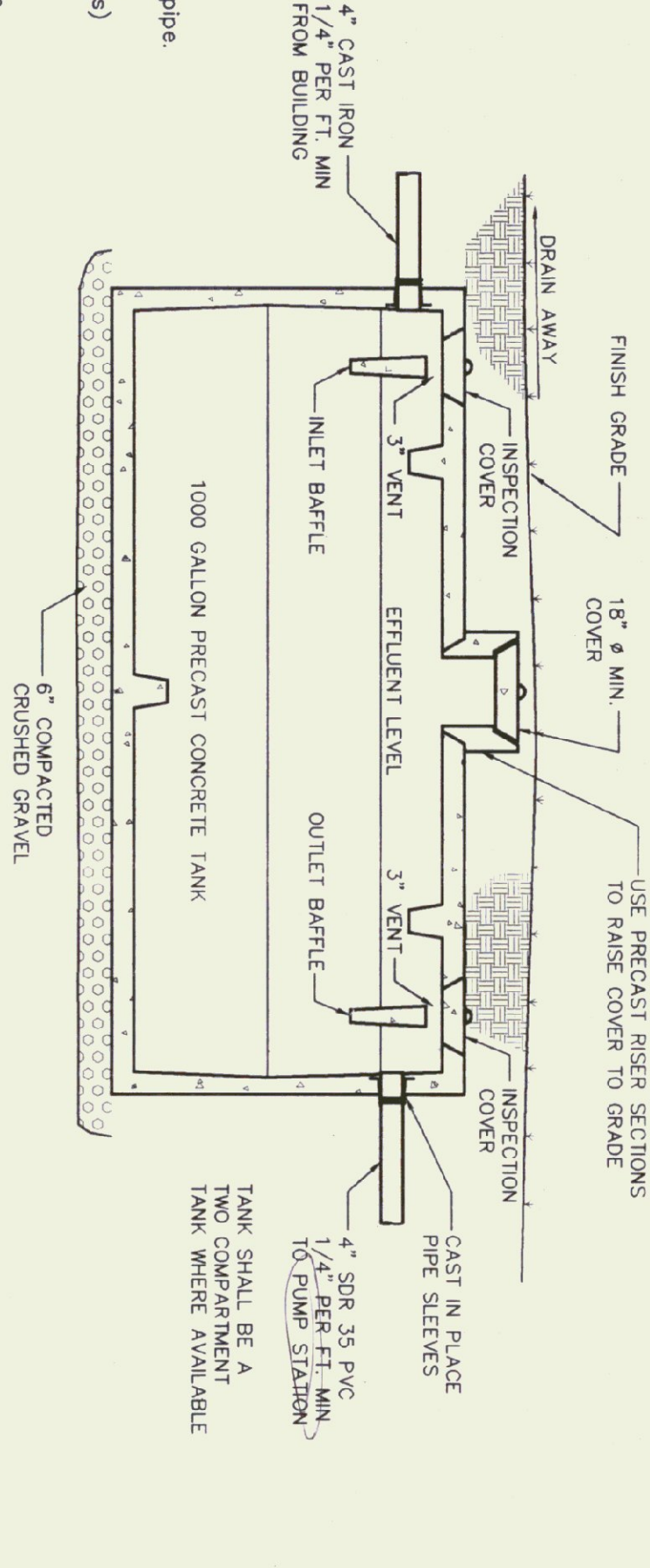
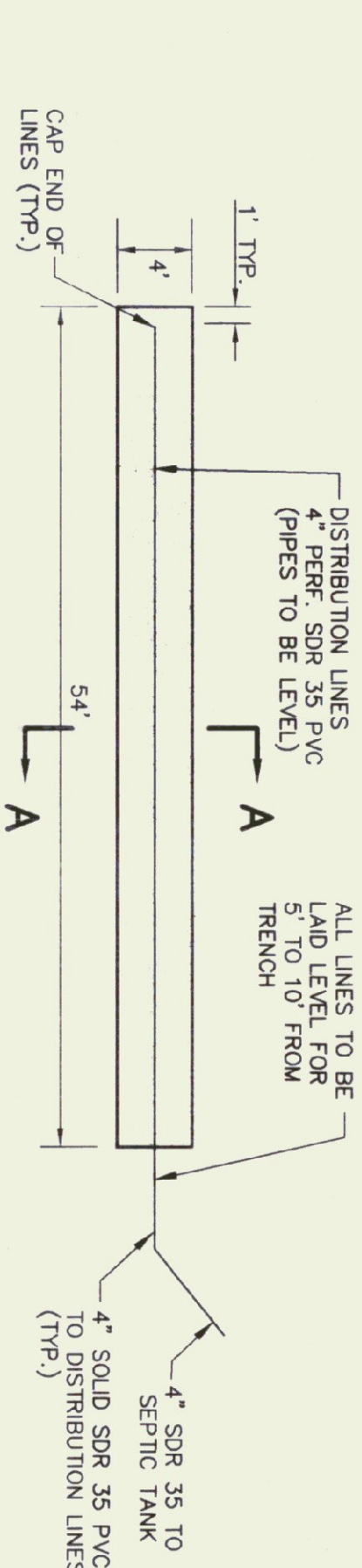
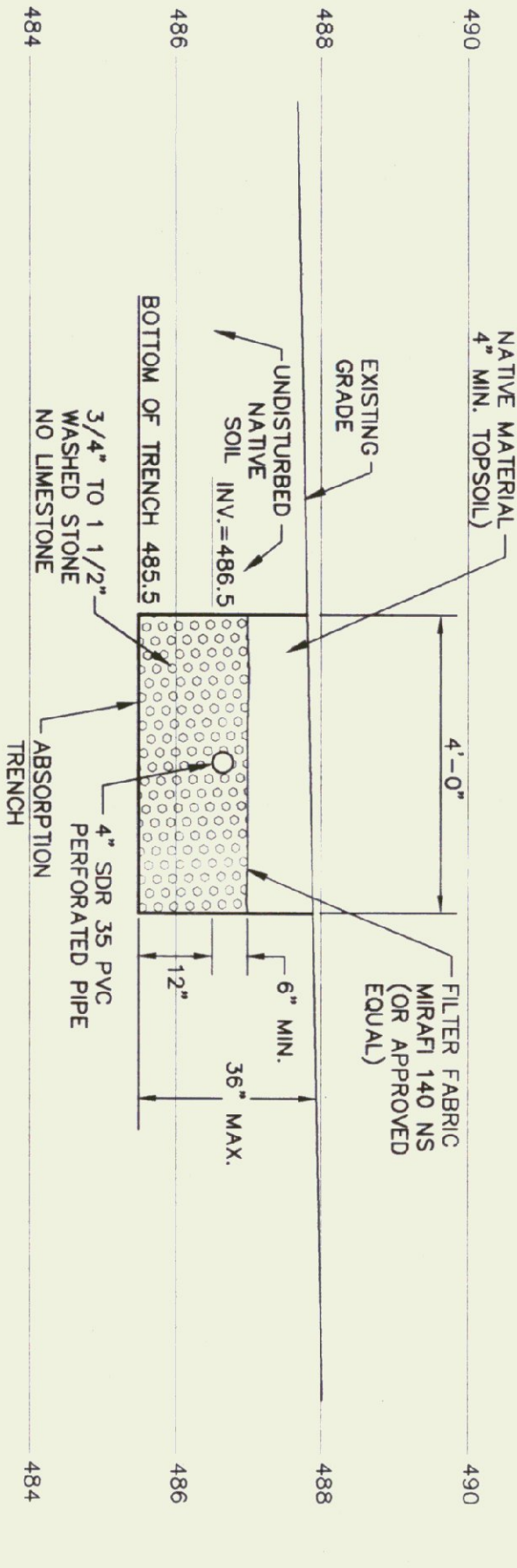
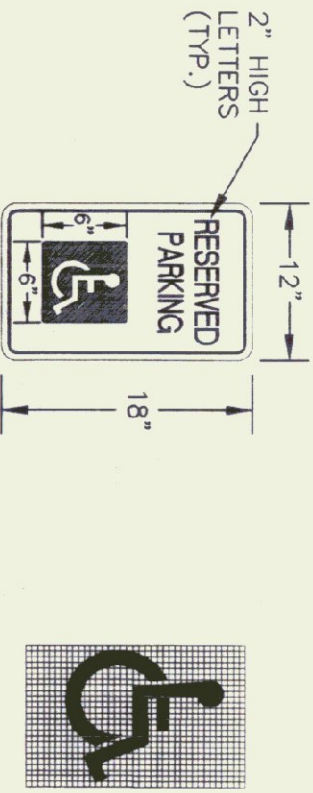
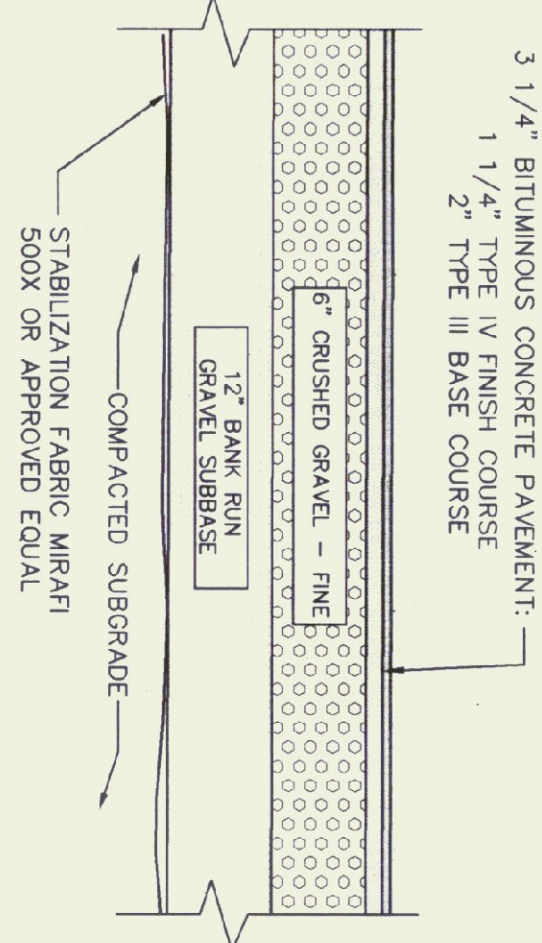
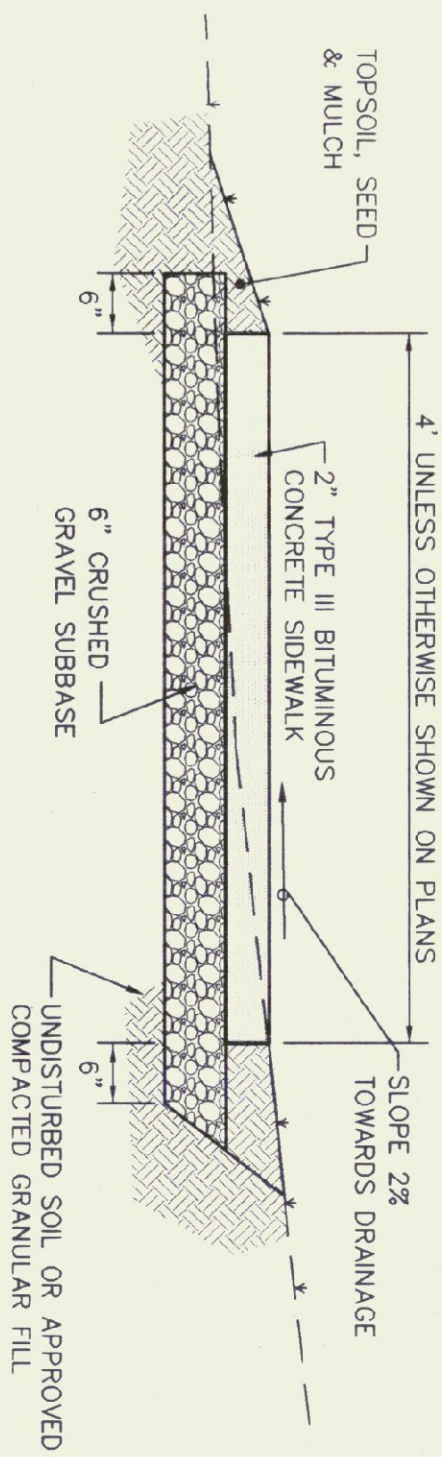
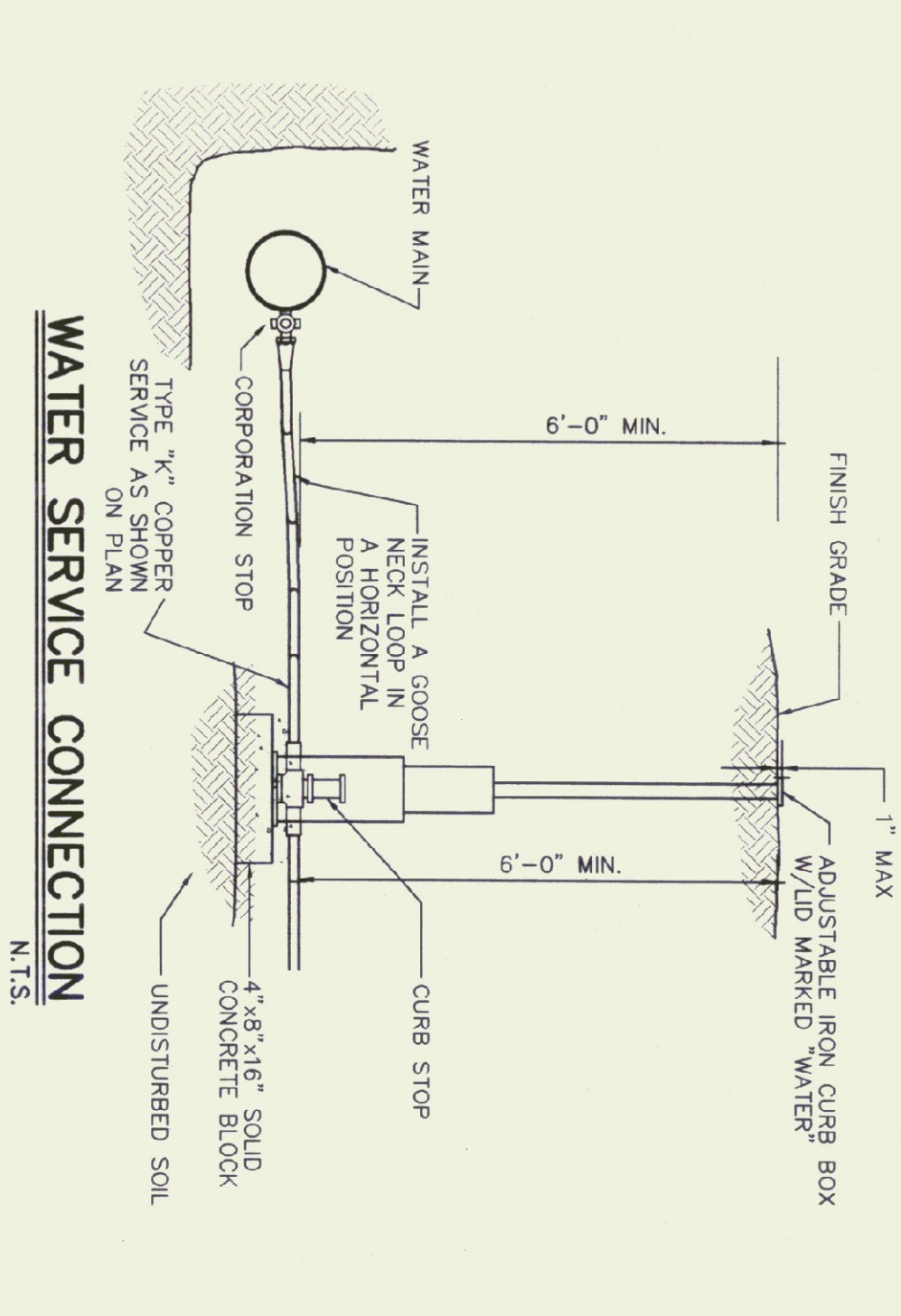
PROJECT:

MIDDLEBURY  
AIRPORT  
MIDDLEBURY, VERMONT

| DATE | CHECKED | REVISION |
|------|---------|----------|
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WASTEWATER  
and SITE  
DETAILS

|                         |                |
|-------------------------|----------------|
| DATE<br>6/5/2002        | DRAWING NUMBER |
| SCALE<br>AS SHOWN       | C3             |
| PROJECT NO.<br>01309.01 |                |



DISPOSAL FIELDS  
PART 1 - GENERAL  
1.01 Summary  
A. Section Includes:  
1. Wastewater Disposal Field

1.02 References

A. All work shall be done in accordance with the State of Vermont Environmental Protection Rules effective August 6, 1996.

PART 2 - PRODUCTS

2.01 General

A. Disposal Fields: SDR 35 PVC pipe meeting the requirements of the latest revision of ASTM Specification D-3034. Fittings used in the disposal fields shall be compatible with distribution lines material.

B. Crushed stone shall be clean, durable and no smaller than 3/4" or larger than 1 1/2 inches in diameter.

PART 3 - EXECUTION

3.01 Disposal Field Installation Procedure

A. The wastewater system shall be inspected during critical stages of construction by a qualified consultant. This shall include a minimum time staking of the disposal field, the location of the disposal field, the location of the distribution piping is placed, the location of the disposal field, the location of the distribution piping is placed, the location of the disposal field, the location of the distribution piping is placed. The consultant will be responsible for contacting the Engineer to set up the inspection schedule.

B. Construction of the system shall not take place when the soil moisture is high in the system area. If the soil at 6 inches below grade can be rolled into the shape of a wire, the soil moisture content is too high for construction to begin.

C. When the trench has been excavated, the sides and bottom shall be rolled to securely any amended soil surfaces. Construction equipment not needed to construct the system should be kept off the area to be utilized for the absorption trench system to prevent undesirable compaction of the soils.

D. At least 12 inches of washed stone shall be placed in the bottom of the trench.

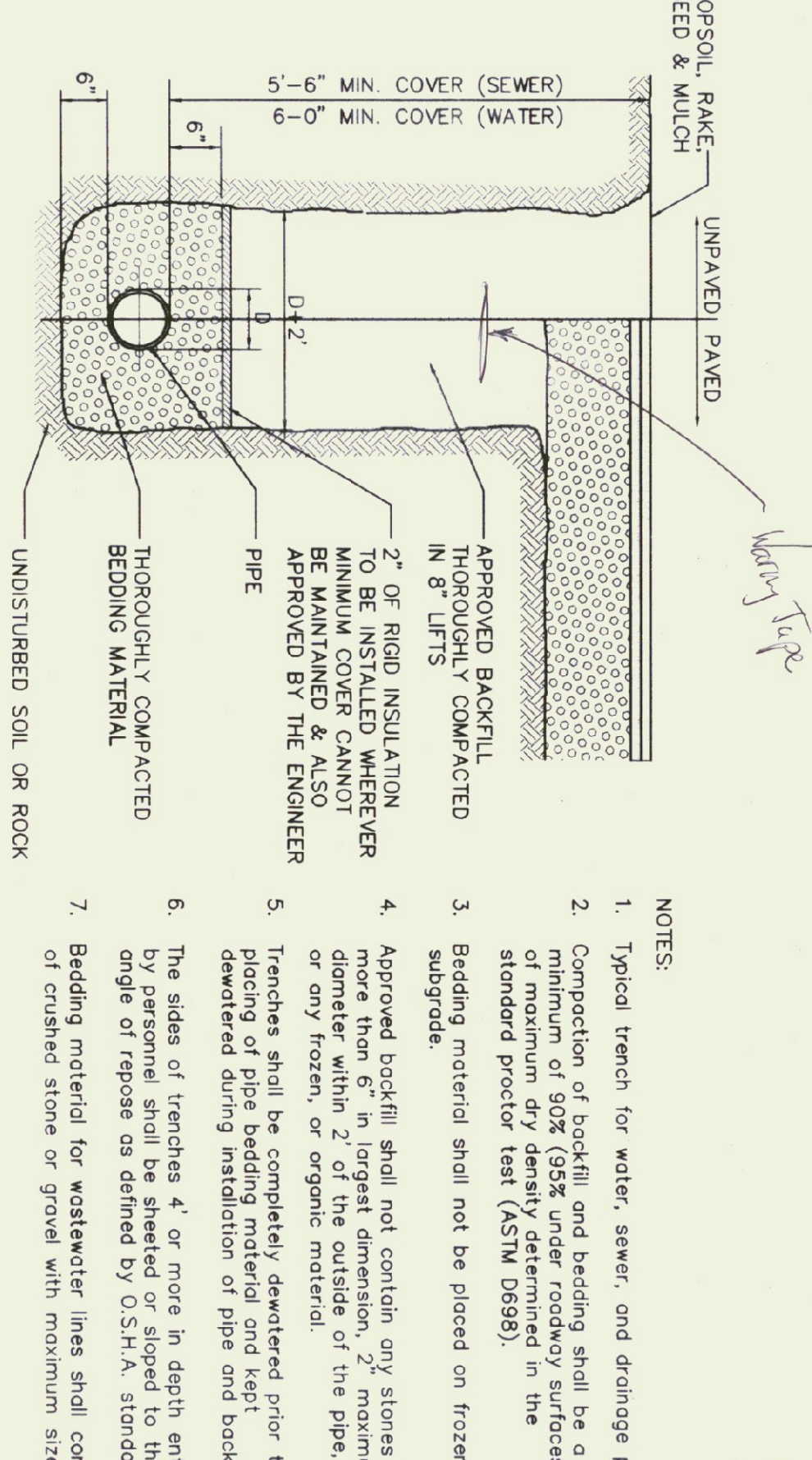
E. The distribution pipe shall be covered with at least 2 inches of clean stone aggregate. The stone aggregate shall be covered completely with filter fabric.

F. The filter fabric shall be covered with a minimum of 12 inches of soil but not more than 18 inches, with the upper 4 to 6 inches of soil being loam and the remainder of the fill being of a fine sandy loam to medium sand texture. A vegetated cover free of large brush and trees shall be maintained over the system.

G. The area surrounding the disposal field shall be graded to provide diversion of surface run-off waters if required.

3.02 Testing Report

A. Prior to use of the system, the qualified consultant shall submit a written report to the State of Vermont stating that the system has been installed according to the approved plans and permit.



- NOTES:
1. Typical trench for water, sewer, and drainage pipe.
  2. Composition 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 keep 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".



|                                                                                                                 |  |
|-----------------------------------------------------------------------------------------------------------------|--|
| <p> <b>DRUM</b><br/> <b>PUM</b><br/>         CHECKED<br/> <b>BCE</b><br/>         APPROVED<br/> <b>BCE</b> </p> |  |
|-----------------------------------------------------------------------------------------------------------------|--|

STATE OF VERMONT  
BUILDINGS and  
GENERAL SERVICES  
MONTPELIER, VERMONT

MIDDLEBURY, VERMONT

[illegible]

# EROSION CONTROL DETAILS

|                              |                |
|------------------------------|----------------|
| DATE<br><b>6/5/2002</b>      | DRAWING NUMBER |
| SCALE<br><b>AS SHOWN</b>     | <b>C4</b>      |
| PROJ. NO.<br><b>07509.01</b> |                |

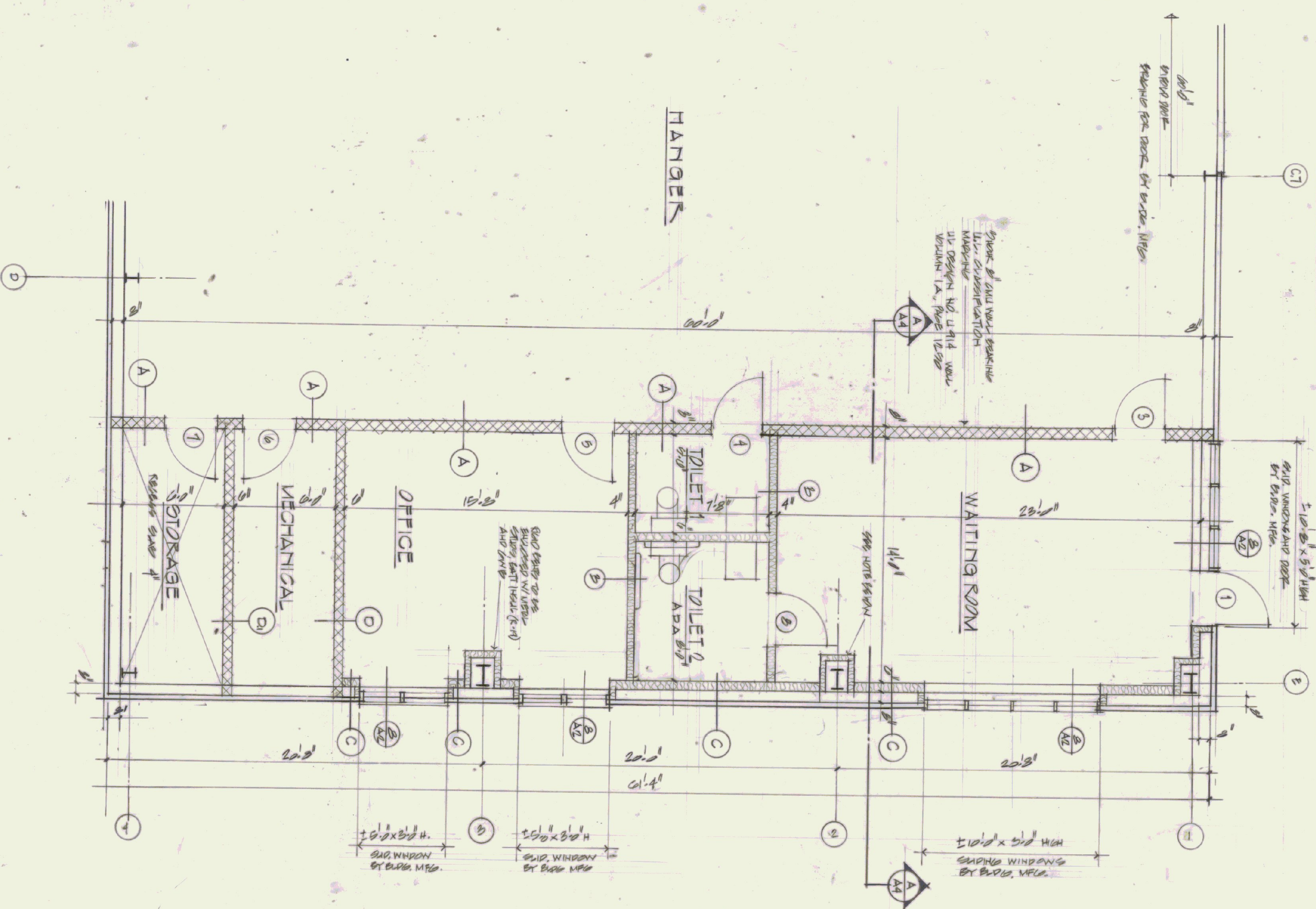


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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| SITE ENGINEER:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | DATE: 6/5/2002                                                                                                                                                                                                                                                                                                                                |  | SCALE: AS SHOWN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  | SHEET NO. 0309.01                                                                                                                                    |  |
| PROJECT COORDINATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  | PART 3 - EXECUTION                                                                                                                                                                                                                                                                                                                            |  | PART 1 - GENERAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  | PART 2 - PRODUCTS                                                                                                                                    |  |
| 1.01 MEETINGS & PROJECT ACCESS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | 3.01 PROCEDURES                                                                                                                                                                                                                                                                                                                               |  | 1.01 SUMMARY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | 2.01 MATERIALS                                                                                                                                       |  |
| A. The Owner shall be notified five (5) days prior to commencement of Work by the Contractor.                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | 1. Existing Utilities:                                                                                                                                                                                                                                                                                                                        |  | A. Section includes:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  | 1. Free of organic materials, free from organic matter and deleterious substances, containing no rocks or lumps over 6" in greatest dimension.       |  |
| B. The Contractor will coordinate with the Owner to arrange on-site pre-construction meeting prior to commencement of any work. Job superintendents and subcontractors shall be included in this meeting.                                                                                                                                                                                                                                                                                                                                               |  | 2. Easements:                                                                                                                                                                                                                                                                                                                                 |  | B. General: This work shall consist of one or more courses of bituminous mixture, constructed on a prepared foundation in accordance with these Specifications and the type of surface being placed, and in conformity with the mix, grades, proportions, and placement methods specified on the plans or indicated by the Engineer.                                                                                                                                                                                                                    |  | 2. Fill material is subject to the approval of the Engineer, and is not material removed from excavations or other sources of material.              |  |
| C. The Contractor will coordinate all phases of the Work, so as not to interfere with the normal work procedures in the area.                                                                                                                                                                                                                                                                                                                                                                                                                           |  | 3. No Compacting:                                                                                                                                                                                                                                                                                                                             |  | C. Bituminous concrete shall not be placed between November 1 and May 1. Material shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                         |  | 3. Do not permit rocks having a dimension greater than 2" to be placed in the trench.                                                                |  |
| D. The Contractor shall conduct his work in such a manner as to not interfere with or endanger work or traffic in areas adjacent to the construction area, except as permitted by the Owner. The Contractor shall coordinate with the Owner to provide access for emergency vehicles and equipment to the work site at all times.                                                                                                                                                                                                                       |  | 4. No Compacting:                                                                                                                                                                                                                                                                                                                             |  | D. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | 4. Cohesive material used for backfill. Provides sand and free from organic material and other foreign matter, and as approved by the Engineer.      |  |
| 1.02 LABOR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  | 3.02 TOLERANCES                                                                                                                                                                                                                                                                                                                               |  | 1.02 QUALITY ASSURANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| A. The Contractor and subcontractors will employ mechanics skilled in their respective trades.                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | A. The surface shall be tested by the Engineer using a 16 foot straight-edge at selected locations parallel with the centerline. Any variations exceeding 3/16 of an inch shall be corrected. A 10 foot straight-edge shall be used on the shoulder.                                                                                          |  | A. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.                                                                                                                                                                                                                                                                                                |  | A. Fill and backfill materials:                                                                                                                      |  |
| B. All labor will be performed in a neat and workmanlike manner.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  | B. The straight-edges shall be provided by the Contractor.                                                                                                                                                                                                                                                                                    |  | B. All materials and installation shall be in accordance with the Asphalt Institute Manual (MS-9) and the VDOT Standard Specifications, 2001.                                                                                                                                                                                                                                                                                                                                                                                                           |  | 1. Free of organic materials, free from organic matter and deleterious substances, containing no rocks or lumps over 6" in greatest dimension.       |  |
| 1.03 PROTECTION OF PERSONS AND PROPERTY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | 3.03 FIELD QUALITY CONTROL                                                                                                                                                                                                                                                                                                                    |  | 1.03 PROJECT CONDITIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | 2. Fill material is subject to the approval of the Engineer, and is not material removed from excavations or other sources of material.              |  |
| A. The Contractor shall be responsible for installing and maintaining all OSHA safety precautions in connection with the Work.                                                                                                                                                                                                                                                                                                                                                                                                                          |  | A. Permit no vehicular traffic on surfaces until thoroughly cured and sealed.                                                                                                                                                                                                                                                                 |  | A. Bituminous concrete shall not be placed between November 1 and May 1. Material shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                         |  | 3. Do not permit rocks having a dimension greater than 2" to be placed in the trench.                                                                |  |
| B. Fire Protection: The Contractor shall take all necessary precautions to prevent fires adjacent to the Work and shall maintain fire extinguishers in all areas where welding or cutting is performed. The Contractor shall also prevent fires in project related buildings and shall prevent the spread of fires to areas outside the limits of the Work.                                                                                                                                                                                             |  | B. Microtensure - Provide hand-drawn symbols and all other markings.                                                                                                                                                                                                                                                                          |  | B. Gradation: Materials shall be combined and graded to meet compaction limits specified in VDOT Standard Specification, Section 406.03, for the base course and finish course.                                                                                                                                                                                                                                                                                                                                                                         |  | 4. Cohesive material used for backfill. Provides sand and free from organic material and other foreign matter, and as approved by the Engineer.      |  |
| C. Safety Precautions: Prior to commencement of Work, the Contractor shall be familiar with all safety regulations and practices applicable with construction operations. No additional payments will be made for equipment and procedures necessitated by these safety precautions.                                                                                                                                                                                                                                                                    |  | 3.04 REPAIR OR SUBSIDENCE                                                                                                                                                                                                                                                                                                                     |  | 1.04 INSURANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | 2.01 MATERIALS                                                                                                                                       |  |
| A. The Contractor shall be responsible for installing and maintaining all OSHA safety precautions in connection with the Work.                                                                                                                                                                                                                                                                                                                                                                                                                          |  | A. Settlement - Should any pavement settle within one year of completion of the Contract, such settlement shall be repaired at the Contractor's expense. If the Contractor fails to make such repairs promptly upon receipt of notice to do so from the Owner, then the Owner may make such repairs as costs incurred in making such repairs. |  | A. Certificate of insurance acceptable to the Owner shall be filed with the Owner prior to the commencement of the Work.                                                                                                                                                                                                                                                                                                                                                                                                                                |  | A. Materials shall be combined and graded to meet the criteria as defined in the VDOT Standard Specifications, Division 700 for bituminous concrete. |  |
| 1.04 INSURANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | 3.05 FIELD QUALITY CONTROL                                                                                                                                                                                                                                                                                                                    |  | 1.05 CORRECTION OF WORK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| A. Certificate of insurance acceptable to the Owner shall be filed with the Owner prior to the commencement of the Work.                                                                                                                                                                                                                                                                                                                                                                                                                                |  | A. Permit no vehicular traffic on surfaces until thoroughly cured and sealed.                                                                                                                                                                                                                                                                 |  | A. The Contractor shall promptly correct all Work rejected by the Owner as defective or as failing to conform to the Contract Documents. The Contractor shall bear all cost of correcting such rejected Work.                                                                                                                                                                                                                                                                                                                                           |  | A. Fill and backfill materials:                                                                                                                      |  |
| 1.05 CORRECTION OF WORK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | 3.06 FIELD QUALITY CONTROL                                                                                                                                                                                                                                                                                                                    |  | 1.06 WEATHER CONDITIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | 2.01 MATERIALS                                                                                                                                       |  |
| A. The Contractor shall promptly correct all Work rejected by the Owner as defective or as failing to conform to the Contract Documents. The Contractor shall bear all cost of correcting such rejected Work.                                                                                                                                                                                                                                                                                                                                           |  | A. Settlement - Should any pavement settle within one year of completion of the Contract, such settlement shall be repaired at the Contractor's expense. If the Contractor fails to make such repairs promptly upon receipt of notice to do so from the Owner, then the Owner may make such repairs as costs incurred in making such repairs. |  | A. No Work shall be done when, in the opinion of the Owner, the weather is such that it is inadvisable. No concrete shall be placed in an environment, or pouring shall be placed upon frozen material. If there is delay or interruption in the Work due to weather conditions, the necessary precautions must be taken to bond new Work to old.                                                                                                                                                                                                       |  | A. Materials shall be combined and graded to meet the criteria as defined in the VDOT Standard Specifications, Division 700 for bituminous concrete. |  |
| 1.06 WEATHER CONDITIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | 3.07 TOLERANCES                                                                                                                                                                                                                                                                                                                               |  | 1.07 DISPOSAL OF DEBRIS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| A. No Work shall be done when, in the opinion of the Owner, the weather is such that it is inadvisable. No concrete shall be placed in an environment, or pouring shall be placed upon frozen material. If there is delay or interruption in the Work due to weather conditions, the necessary precautions must be taken to bond new Work to old.                                                                                                                                                                                                       |  | A. The surface shall be tested by the Engineer using a 16 foot straight-edge at selected locations parallel with the centerline. Any variations exceeding 3/16 of an inch shall be corrected. A 10 foot straight-edge shall be used on the shoulder.                                                                                          |  | A. All debris and excess materials, other than that which is authorized to be reused, become the property of the Contractor and shall be promptly removed from the property. The Contractor shall receive title to all debris and/or excess material. The Owner will not be responsible for any damage to the Work caused by debris or excess material caused by the Contractor.                                                                                                                                                                        |  | A. Fill and backfill materials:                                                                                                                      |  |
| B. Protection Against Water and Storm: The Contractor shall take all precautions to prevent damage to the Work by storms or by water entering the site of the Work directly or through the ground. In case of damage by storm or water, the Contractor, at his own expense, shall make repairs or replacement of damaged material. The Contractor shall be responsible for any damage to the Work caused by water or storm. The Contractor may require in order that the finished work may be completed as required by the Drawings and Specifications. |  | B. The straight-edges shall be provided by the Contractor.                                                                                                                                                                                                                                                                                    |  | 1.08 PROJECT LAYOUT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  | 2.01 MATERIALS                                                                                                                                       |  |
| C. Safety Precautions: Prior to commencement of Work, the Contractor shall be familiar with all safety regulations and practices applicable with construction operations. No additional payments will be made for equipment and procedures necessitated by these safety precautions.                                                                                                                                                                                                                                                                    |  | C. Microtensure - Provide hand-drawn symbols and all other markings.                                                                                                                                                                                                                                                                          |  | A. The Contractor shall be responsible for providing all necessary survey staking.                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | A. Materials shall be combined and graded to meet the criteria as defined in the VDOT Standard Specifications, Division 700 for bituminous concrete. |  |
| 1.07 DISPOSAL OF DEBRIS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | 3.08 FIELD QUALITY CONTROL                                                                                                                                                                                                                                                                                                                    |  | 1.09 UTILITY TRENCHING AND BACKFILLING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| A. All debris and excess materials, other than that which is authorized to be reused, become the property of the Contractor and shall be promptly removed from the property. The Contractor shall receive title to all debris and/or excess material. The Owner will not be responsible for any damage to the Work caused by debris or excess material caused by the Contractor.                                                                                                                                                                        |  | A. Settlement - Should any pavement settle within one year of completion of the Contract, such settlement shall be repaired at the Contractor's expense. If the Contractor fails to make such repairs promptly upon receipt of notice to do so from the Owner, then the Owner may make such repairs as costs incurred in making such repairs. |  | PART 1 - GENERAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  | 2.01 MATERIALS                                                                                                                                       |  |
| B. Protection Against Water and Storm: The Contractor shall take all precautions to prevent damage to the Work by storms or by water entering the site of the Work directly or through the ground. In case of damage by storm or water, the Contractor, at his own expense, shall make repairs or replacement of damaged material. The Contractor shall be responsible for any damage to the Work caused by water or storm. The Contractor may require in order that the finished work may be completed as required by the Drawings and Specifications. |  | B. Microtensure - Provide hand-drawn symbols and all other markings.                                                                                                                                                                                                                                                                          |  | 1.01 SUMMARY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| C. Safety Precautions: Prior to commencement of Work, the Contractor shall be familiar with all safety regulations and practices applicable with construction operations. No additional payments will be made for equipment and procedures necessitated by these safety precautions.                                                                                                                                                                                                                                                                    |  | C. Microtensure - Provide hand-drawn symbols and all other markings.                                                                                                                                                                                                                                                                          |  | A. Section includes:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  | A. Fill and backfill materials:                                                                                                                      |  |
| 1.08 PROJECT LAYOUT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  | 3.09 FIELD QUALITY CONTROL                                                                                                                                                                                                                                                                                                                    |  | 1.02 QUALITY ASSURANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | 2.01 MATERIALS                                                                                                                                       |  |
| A. The Contractor shall be responsible for providing all necessary survey staking.                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | A. Permit no vehicular traffic on surfaces until thoroughly cured and sealed.                                                                                                                                                                                                                                                                 |  | A. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.                                                                                                                                                                                                                                                                                                |  | A. Fill and backfill materials:                                                                                                                      |  |
| 1.09 UTILITY TRENCHING AND BACKFILLING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | 3.10 FIELD QUALITY CONTROL                                                                                                                                                                                                                                                                                                                    |  | 1.03 PROJECT CONDITIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| PART 1 - GENERAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  | A. Settlement - Should any pavement settle within one year of completion of the Contract, such settlement shall be repaired at the Contractor's expense. If the Contractor fails to make such repairs promptly upon receipt of notice to do so from the Owner, then the Owner may make such repairs as costs incurred in making such repairs. |  | A. Bituminous concrete shall not be placed between November 1 and May 1. Material shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                         |  | A. Materials shall be combined and graded to meet the criteria as defined in the VDOT Standard Specifications, Division 700 for bituminous concrete. |  |
| 1.01 SUMMARY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | B. Microtensure - Provide hand-drawn symbols and all other markings.                                                                                                                                                                                                                                                                          |  | B. Gradation: Materials shall be combined and graded to meet compaction limits specified in VDOT Standard Specification, Section 406.03, for the base course and finish course.                                                                                                                                                                                                                                                                                                                                                                         |  | 2.01 MATERIALS                                                                                                                                       |  |
| A. Section includes:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  | C. Microtensure - Provide hand-drawn symbols and all other markings.                                                                                                                                                                                                                                                                          |  | 1.04 INSURANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| 1. Trench, backfill, and compact as specified herein and as needed for installation of underground utilities located outside the buildings.                                                                                                                                                                                                                                                                                                                                                                                                             |  | D. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                          |  | A. Certificate of insurance acceptable to the Owner shall be filed with the Owner prior to the commencement of the Work.                                                                                                                                                                                                                                                                                                                                                                                                                                |  | A. Fill and backfill materials:                                                                                                                      |  |
| 1.02 QUALITY ASSURANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | E. The surface shall be tested by the Engineer using a 16 foot straight-edge at selected locations parallel with the centerline. Any variations exceeding 3/16 of an inch shall be corrected. A 10 foot straight-edge shall be used on the shoulder.                                                                                          |  | 1.05 CORRECTION OF WORK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | 2.01 MATERIALS                                                                                                                                       |  |
| A. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.                                                                                                                                                                                                                                                                                                |  | F. There shall be no physical connection between the distribution system and any pipe, pump, hydrant, or tank which are supplied or may be supplied with a water that is or may be contaminated.                                                                                                                                              |  | A. The Contractor shall promptly correct all Work rejected by the Owner as defective or as failing to conform to the Contract Documents. The Contractor shall bear all cost of correcting such rejected Work.                                                                                                                                                                                                                                                                                                                                           |  | A. Materials shall be combined and graded to meet the criteria as defined in the VDOT Standard Specifications, Division 700 for bituminous concrete. |  |
| B. Use equipment adequate in size, capacity, and numbers to accomplish the work in a timely manner.                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  | G. All trenching shall be done in accordance with the VDOT Standard Specifications, 2001.                                                                                                                                                                                                                                                     |  | 1.06 WEATHER CONDITIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| C. Comply with all requirements of governmental agencies having jurisdiction.                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | H. All trenching shall be done in accordance with the VDOT Standard Specifications, 2001.                                                                                                                                                                                                                                                     |  | A. No Work shall be done when, in the opinion of the Owner, the weather is such that it is inadvisable. No concrete shall be placed in an environment, or pouring shall be placed upon frozen material. If there is delay or interruption in the Work due to weather conditions, the necessary precautions must be taken to bond new Work to old.                                                                                                                                                                                                       |  | A. Fill and backfill materials:                                                                                                                      |  |
| PART 2 - PRODUCTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | I. Bituminous concrete shall not be placed between November 1 and May 1. Material shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                               |  | B. Protection Against Water and Storm: The Contractor shall take all precautions to prevent damage to the Work by storms or by water entering the site of the Work directly or through the ground. In case of damage by storm or water, the Contractor, at his own expense, shall make repairs or replacement of damaged material. The Contractor shall be responsible for any damage to the Work caused by water or storm. The Contractor may require in order that the finished work may be completed as required by the Drawings and Specifications. |  | 2.01 MATERIALS                                                                                                                                       |  |
| 2.01 SOIL MATERIALS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  | J. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                          |  | C. Safety Precautions: Prior to commencement of Work, the Contractor shall be familiar with all safety regulations and practices applicable with construction operations. No additional payments will be made for equipment and procedures necessitated by these safety precautions.                                                                                                                                                                                                                                                                    |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| A. Fill and backfill materials:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  | K. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                          |  | D. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | 2.01 MATERIALS                                                                                                                                       |  |
| 1. Free of organic materials, free from organic matter and deleterious substances, containing no rocks or lumps over 6" in greatest dimension.                                                                                                                                                                                                                                                                                                                                                                                                          |  | L. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                          |  | E. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| 2. Fill material is subject to the approval of the Engineer, and is not material removed from excavations or other sources of material.                                                                                                                                                                                                                                                                                                                                                                                                                 |  | M. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                          |  | F. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | 2.01 MATERIALS                                                                                                                                       |  |
| 3. Do not permit rocks having a dimension greater than 2" to be placed in the trench.                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  | N. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                          |  | G. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| 4. Cohesive material used for backfill. Provides sand and free from organic material and other foreign matter, and as approved by the Engineer.                                                                                                                                                                                                                                                                                                                                                                                                         |  | O. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                          |  | H. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | 2.01 MATERIALS                                                                                                                                       |  |
| PART 3 - EXECUTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | P. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                          |  | I. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| 3.01 INSTALLATION PROCEDURES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | Q. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                          |  | J. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | 2.01 MATERIALS                                                                                                                                       |  |
| A. Installation of a water line shall be in accordance with AWWA C 600 installed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | R. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                          |  | K. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| B. Pipe fitting and components shall be carefully inspected to avoid damage. Prior to the start of excavation of the project work by the Owner, the Contractor shall receive new pipe or accessories found to be defective at any time, including after installation, or no expense to the Owner.                                                                                                                                                                                                                                                       |  | S. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                          |  | L. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | 2.01 MATERIALS                                                                                                                                       |  |
| C. All pipe showing cracks shall be rejected. If cracks occur in the pipe, the Contractor may, at his own expense and with the approval of the Owner, repair the pipe by using a temporary water-tight plug or by other approved means. If water is in the trench when the pipe is installed, the pipe shall be installed in trenches and at the time and place shown on the Contract Documents. Any detection joints shall be within the limits specified by the manufacturer.                                                                         |  | T. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                          |  | M. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| D. The Contractor may, at his own expense and with the approval of the Owner, repair the pipe by using a temporary water-tight plug or by other approved means. If water is in the trench when the pipe is installed, the pipe shall be installed in trenches and at the time and place shown on the Contract Documents. Any detection joints shall be within the limits specified by the manufacturer.                                                                                                                                                 |  | U. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                          |  | N. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | 2.01 MATERIALS                                                                                                                                       |  |
| E. All of lines, when the pipe laying is not actually in progress, the open ends of the pipe shall be sealed by temporary water-tight plugs or by other approved means. If water is in the trench when the pipe is installed, the pipe shall be installed in trenches and at the time and place shown on the Contract Documents. Any detection joints shall be within the limits specified by the manufacturer.                                                                                                                                         |  | V. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                          |  | O. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| F. There shall be no physical connection between the distribution system and any pipe, pump, hydrant, or tank which are supplied or may be supplied with a water that is or may be contaminated.                                                                                                                                                                                                                                                                                                                                                        |  | W. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                          |  | P. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | 2.01 MATERIALS                                                                                                                                       |  |
| G. All trenching shall be done in accordance with the VDOT Standard Specifications, 2001.                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  | X. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                          |  | Q. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| H. All trenching shall be done in accordance with the VDOT Standard Specifications, 2001.                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  | Y. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                          |  | R. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | 2.01 MATERIALS                                                                                                                                       |  |
| I. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | S. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                          |  | T. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| J. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | U. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                          |  | V. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | 2.01 MATERIALS                                                                                                                                       |  |
| K. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | W. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                          |  | X. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| L. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | Y. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                          |  | Z. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | 2.01 MATERIALS                                                                                                                                       |  |
| M. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | AA. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                         |  | AB. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| N. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | AC. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                         |  | AD. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | 2.01 MATERIALS                                                                                                                                       |  |
| O. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | AE. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                         |  | AF. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| P. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | AG. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                         |  | AH. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | 2.01 MATERIALS                                                                                                                                       |  |
| Q. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | AI. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                         |  | AJ. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| R. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | AK. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                         |  | AL. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | 2.01 MATERIALS                                                                                                                                       |  |
| S. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | AM. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                         |  | AN. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| T. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | AO. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                         |  | AP. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | 2.01 MATERIALS                                                                                                                                       |  |
| U. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | AQ. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                         |  | AR. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| V. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | AS. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                         |  | AT. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | 2.01 MATERIALS                                                                                                                                       |  |
| W. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | AU. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                         |  | AV. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| X. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | AW. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                         |  | AX. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | 2.01 MATERIALS                                                                                                                                       |  |
| Y. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | AY. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                         |  | AZ. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| Z. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                    |  | BA. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                         |  | BB. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | 2.01 MATERIALS                                                                                                                                       |  |
| AA. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | BC. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                         |  | BD. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| BB. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | BE. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                         |  | BF. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | 2.01 MATERIALS                                                                                                                                       |  |
| BC. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | BG. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                         |  | BH. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| BD. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | BI. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                         |  | BJ. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | 2.01 MATERIALS                                                                                                                                       |  |
| BE. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | BK. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                         |  | BL. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| BF. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | BM. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                         |  | BN. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | 2.01 MATERIALS                                                                                                                                       |  |
| BG. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | BO. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                         |  | BP. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| BH. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | BQ. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                         |  | BR. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | 2.01 MATERIALS                                                                                                                                       |  |
| BI. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | BS. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                         |  | BT. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| BJ. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | BU. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                         |  | BV. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | 2.01 MATERIALS                                                                                                                                       |  |
| BK. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | BV. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                         |  | BW. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| BL. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | BW. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                         |  | BX. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | 2.01 MATERIALS                                                                                                                                       |  |
| BM. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | BX. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                         |  | BY. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | 2.02 SOIL MATERIALS                                                                                                                                  |  |
| BN. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | BY. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                         |  | BZ. Bituminous concrete shall not be placed when the granular subbase is wet or when the air temperature of the paving site in the shade and away from artificial heat is as follows:                                                                                                                                                                                                                                                                                                                                                                   |  | 2.01 MATERIALS                                                                                                                                       |  |
| BO. Bituminous concrete shall not be placed when the granular subbase                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |                                                                                                                                                      |  |

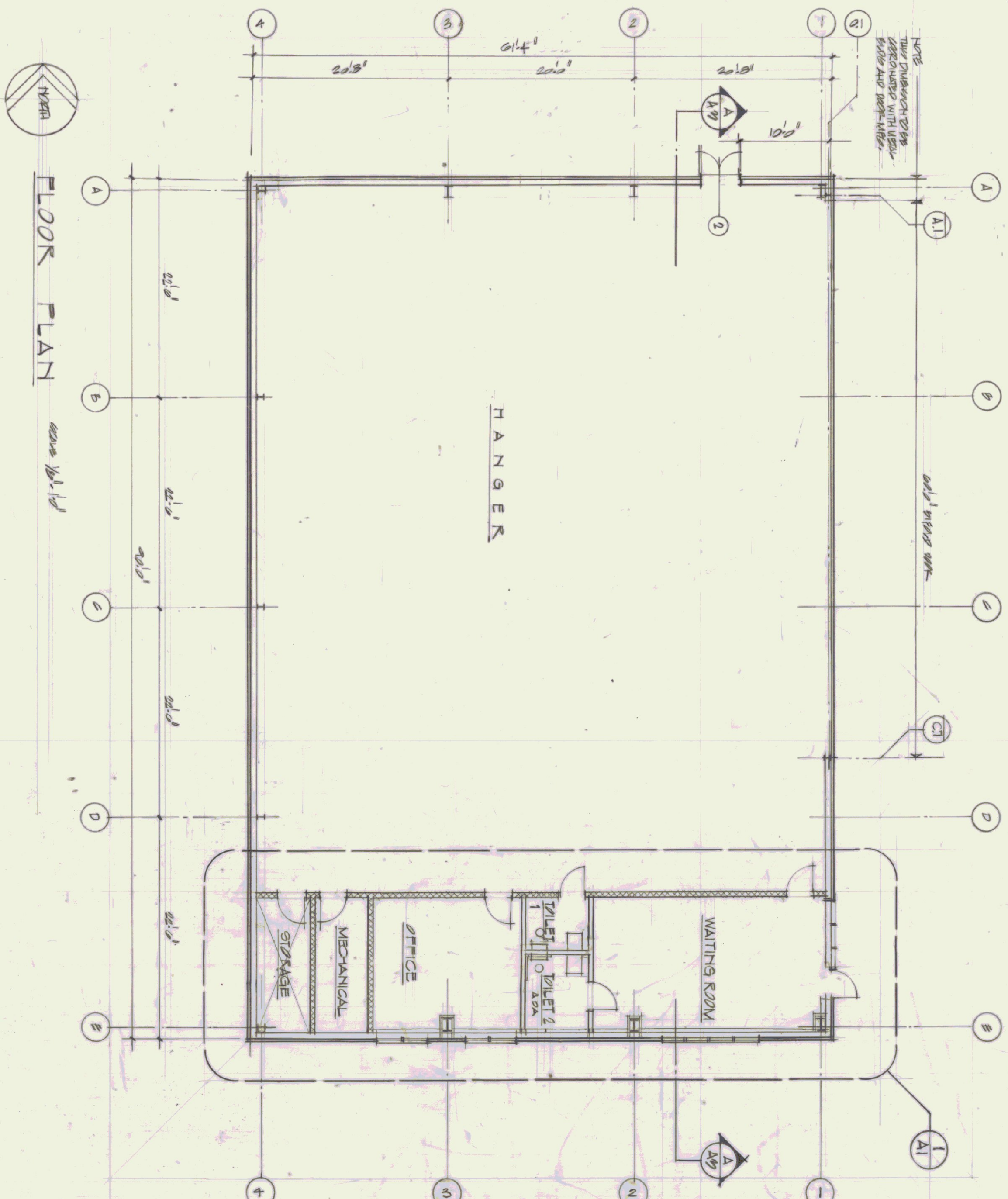


Figure 1 consists of three cross-sectional diagrams labeled (A), (B), and (C), illustrating the details of a proposed composite floor system.   
 Diagram (A) shows a top-down view of a section with a width of 700mm. It features a 300mm concrete slab on top of a 300mm concrete slab.   
 Diagram (B) shows a side view of the assembly. It includes a 40mm gap, a 300mm concrete slab, and a 300mm concrete slab. Labels indicate '300 REINFORCED FILLING CHANNEL' and '300mm concrete slab'.   
 Diagram (C) shows another side view, similar to (B), with a 40mm gap, a 300mm concrete slab, and a 300mm concrete slab. It also includes labels for '300 REINFORCED FILLING CHANNEL' and '300mm concrete slab'.   
 A note at the bottom of the figure states: 'NOTE: 300mm concrete slab at B'.

## WALL TYPES

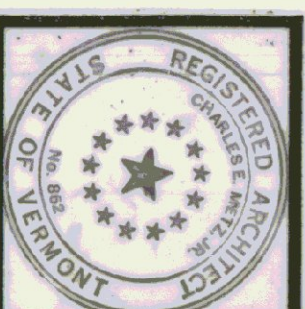


# PARTIAL FLOOR PLAN

$$\text{scale } \frac{1}{4} - 1.0$$
[illegible]

## FLOOR PLAN

Case 1/20-100

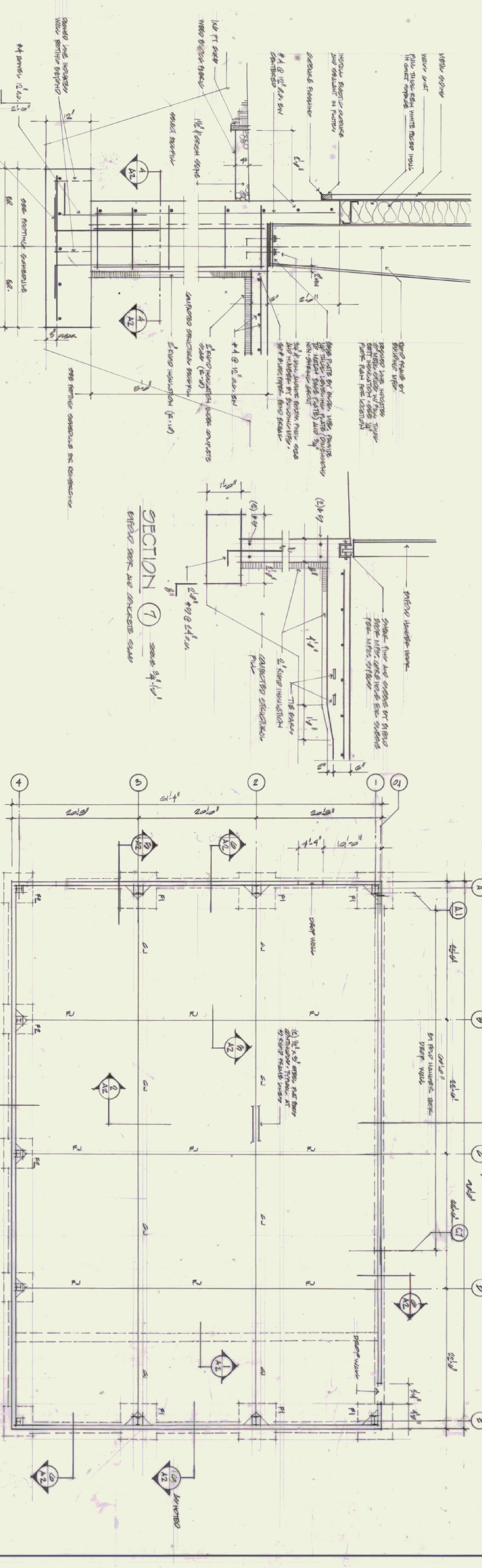


**PROJECT:**  
NEW AIRPORT HANGER  
MIDDLEBURY STATE AIRPORT  
**TITLE:** MIDDLEBURY VIEWHAT  
FLOOR PLANS • DETAILS  
FINISH SCHEDULE

**CHARLES E. METZ  
ARCHITECT  
THE GRIST MILL  
BRADFORD VT 05033**

## DRAWING

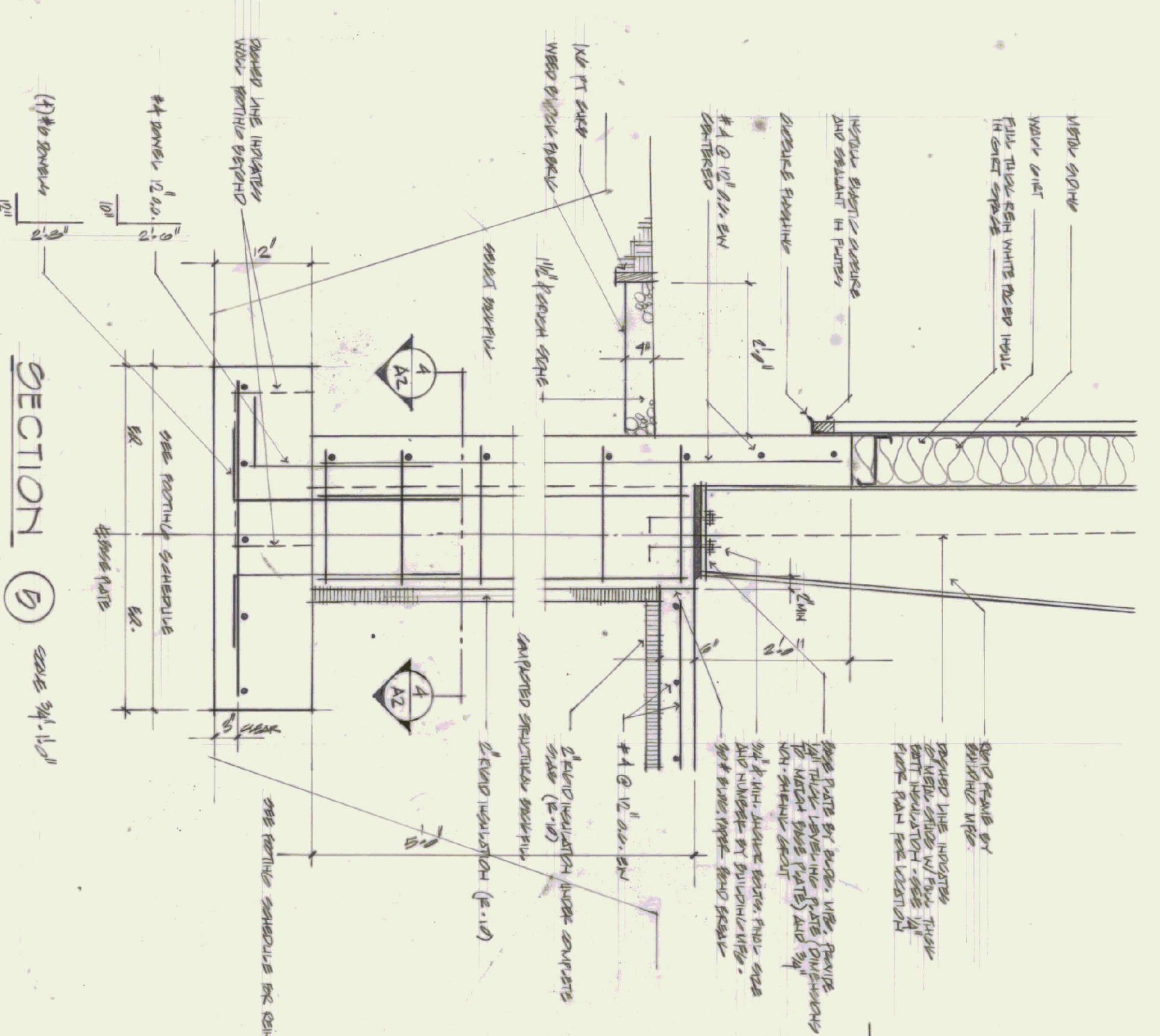




| FOOTING SCHEDULE |                    |                  |            |
|------------------|--------------------|------------------|------------|
| MARK             | SIZE               | REINFORCING      | REMARKS    |
| F1               | 24" x 24" x 12' 0" | #4 @ 12" O.C. BN | FOUNDATION |
| F2               | 24" x 24" x 12' 0" | #4 @ 12" O.C. BN | FOUNDATION |

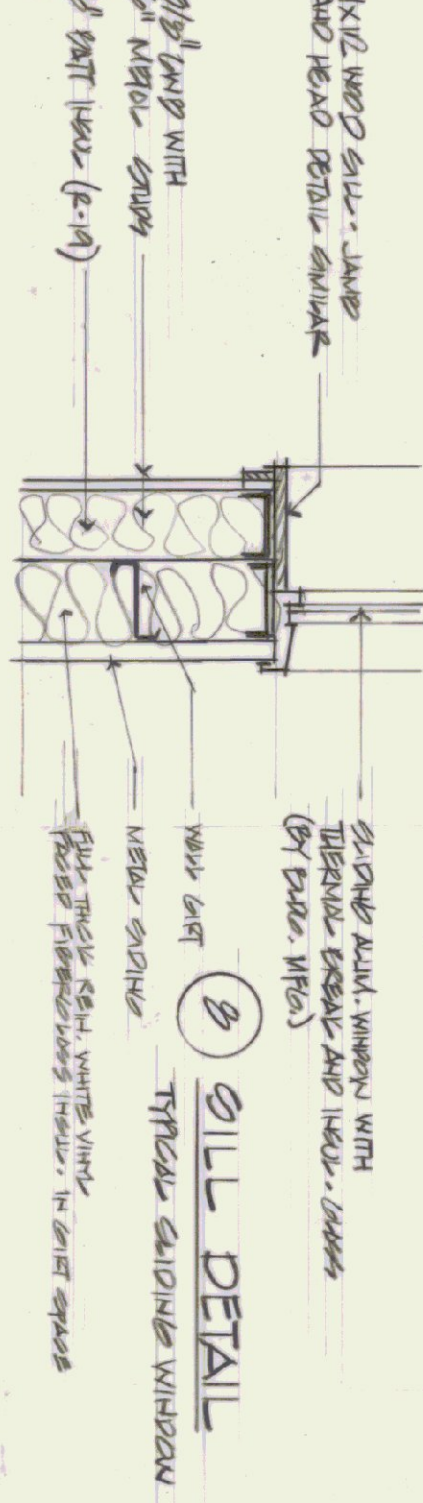
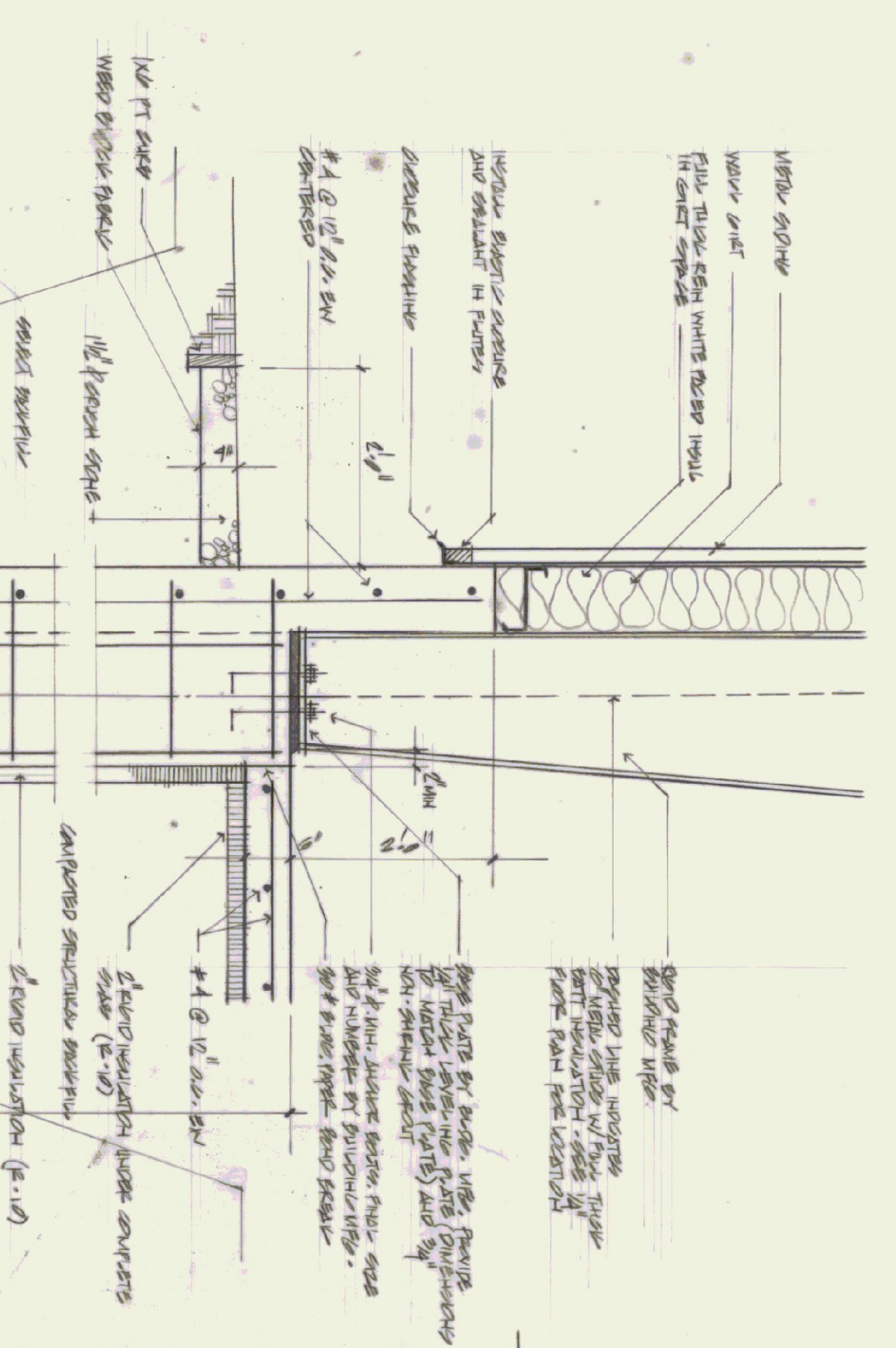
NOTE  
THE FOUNDATION DESIGN SHOWN ASSUMES TYPICAL FOUNDATION LOADS FROM A STEEL FRAME WOOD BUILDING OF THIS TYPE AND SIZE. LOCAL PIER AND BEARING CAPACITY MUST BE CHECKED WITH THE CONTRACTOR. SUBSEQUENT REVISIONS MAY BE REQUIRED TO BE REVIEWED WITH THE CONTRACTOR. THE FOUNDATION DESIGN IS PROVIDED FOR THE CONTRACTOR'S REVIEW AND APPROVAL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND REGULATIONS FROM THE LOCAL AND STATE AUTHORITIES.

FOUNDATION PLAN

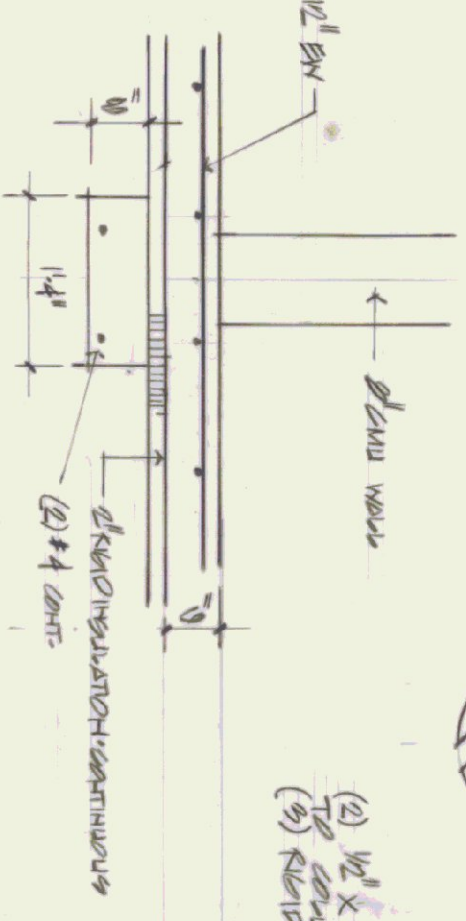


SECTION 5

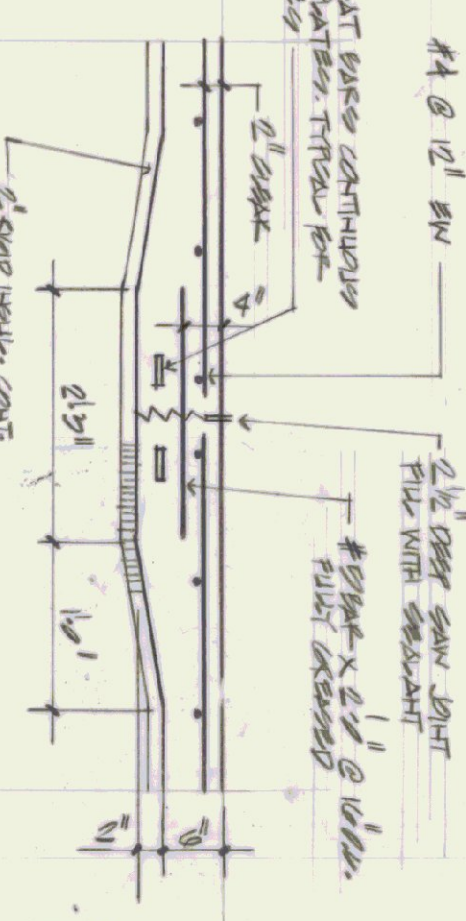
SECTION 7



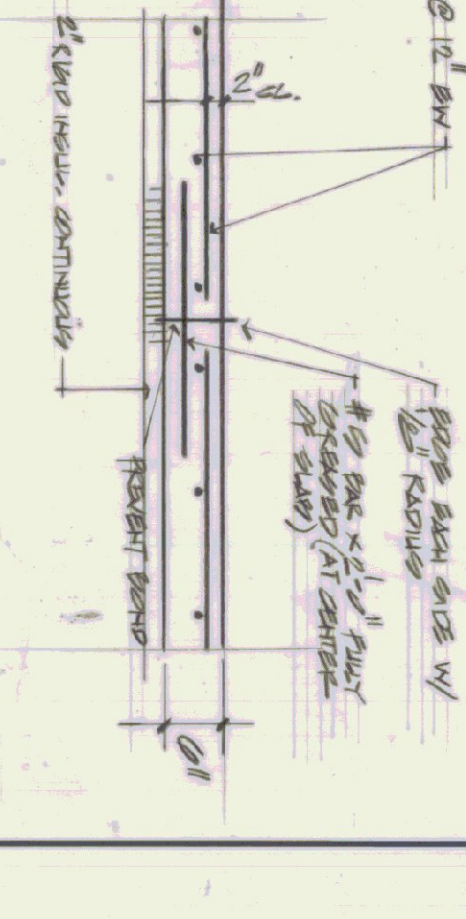
SECTION 8



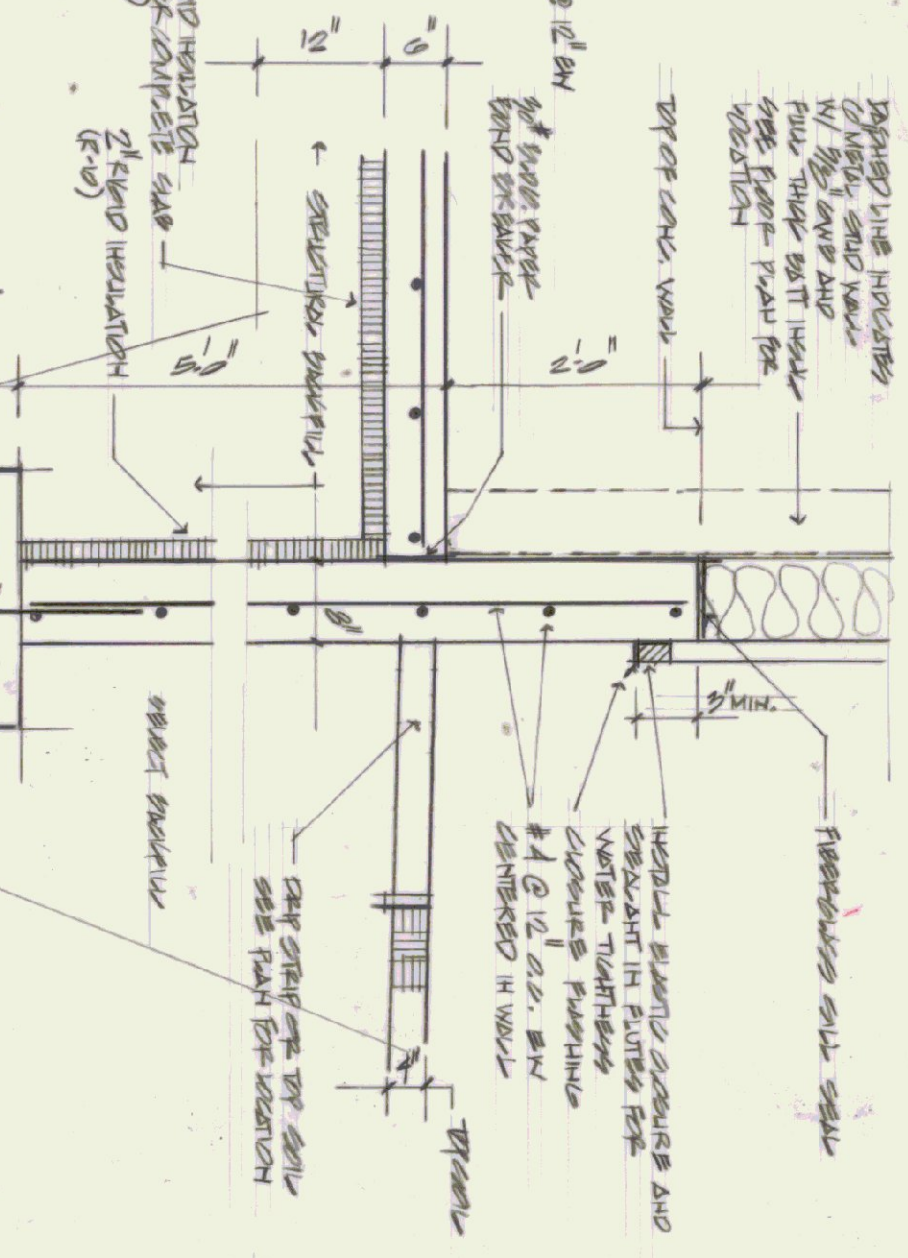
SECTION 1



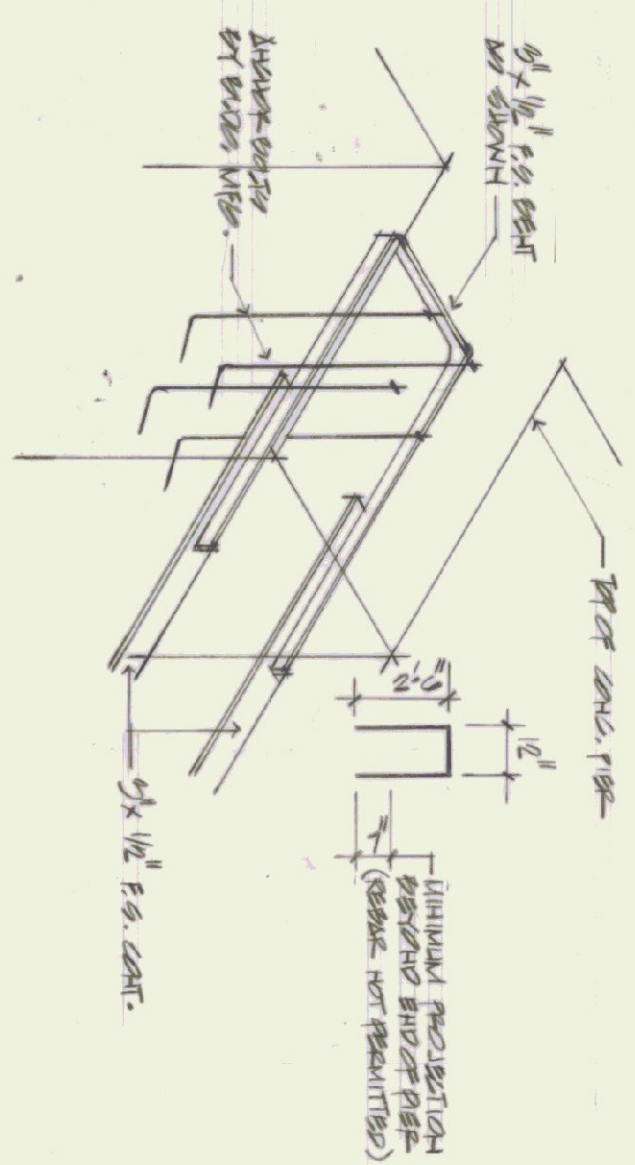
SECTION 2



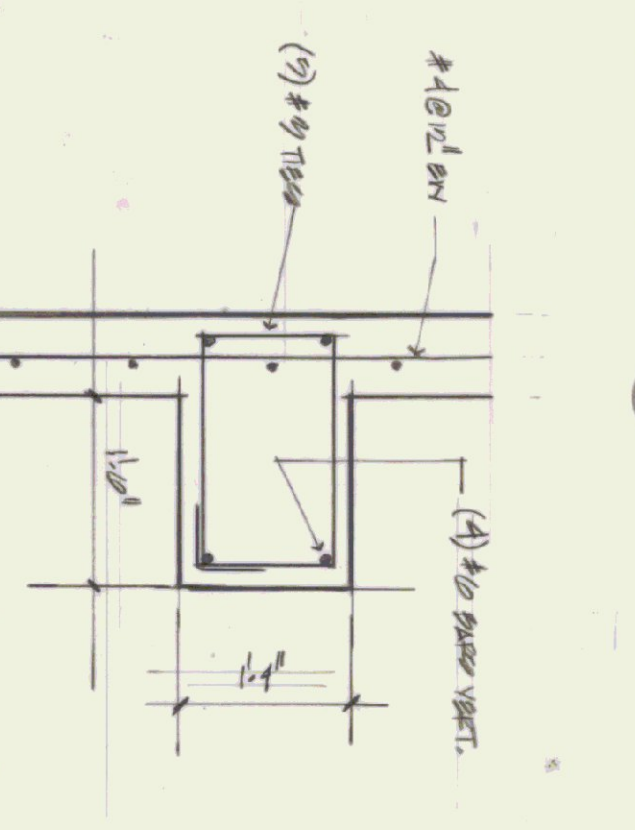
SECTION 3



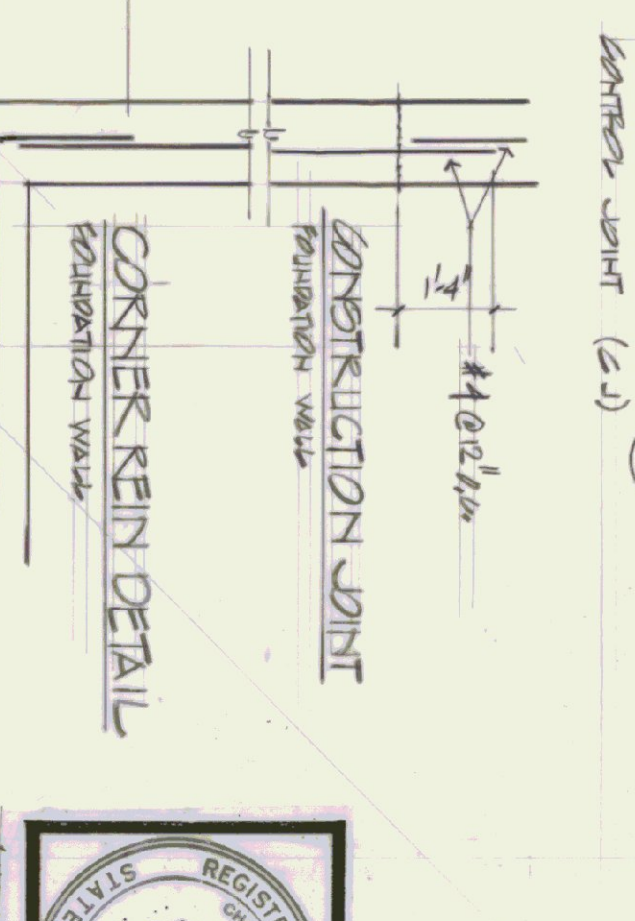
SECTION 6



ISOMETRIC - FRAMING OF RIGID FRAMES



SECTION 4

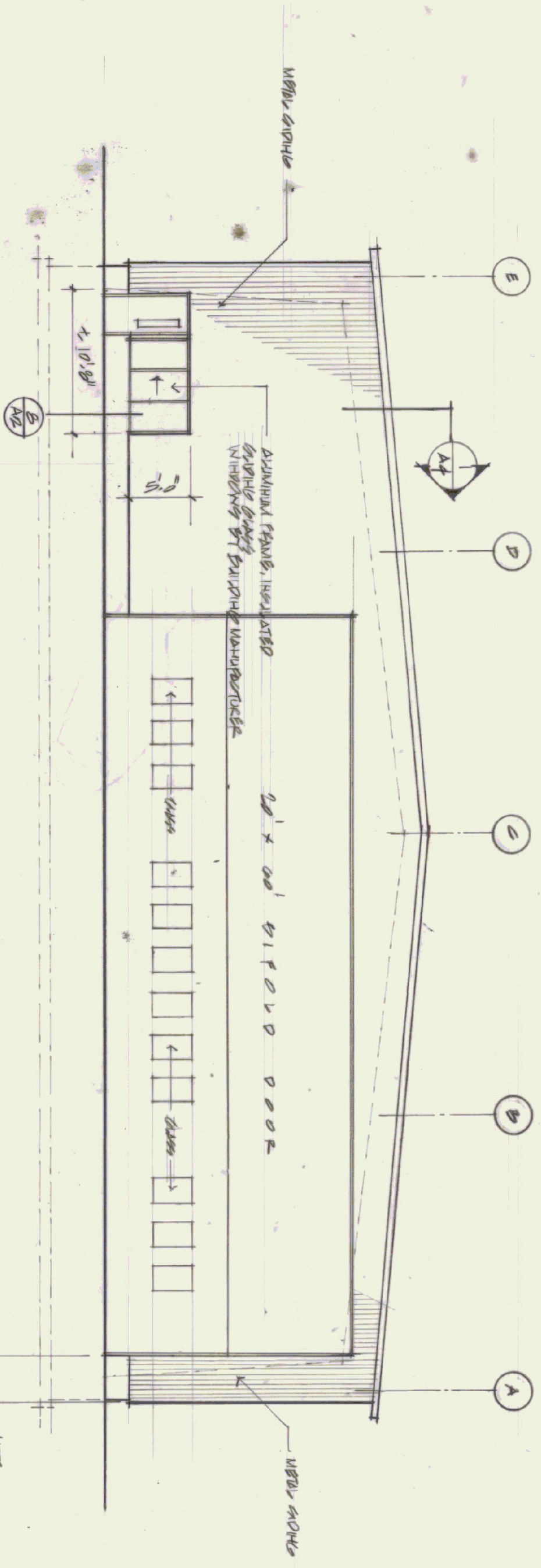


PROJECT:  
NEW AIRPORT HANGER  
MIDDLEBURY STATE AIRPORT  
TITLE: MIDDLEBURY STATE AIRPORT  
FOUNDATION PLAN  
DETAILS

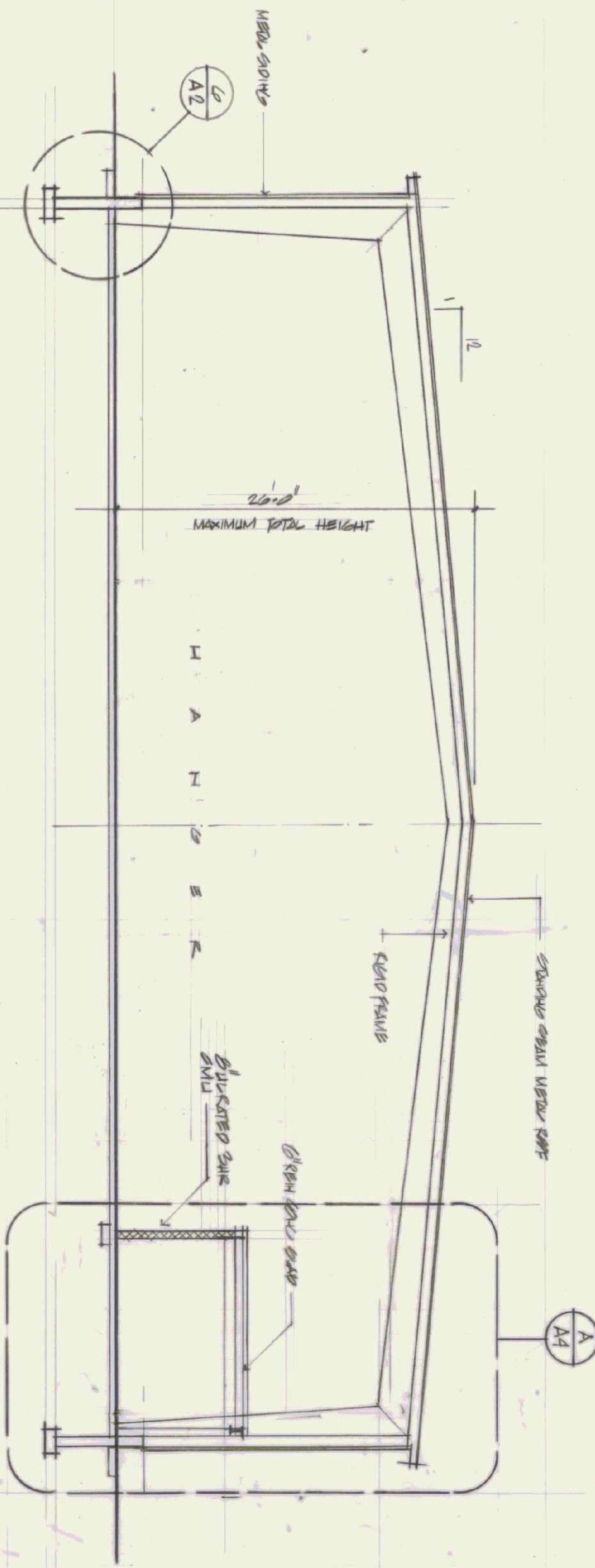
CHARLES E. METZ  
ARCHITECT  
THE GRIST MILL  
BRADFORD VT 05033

DRAWING:  
A2

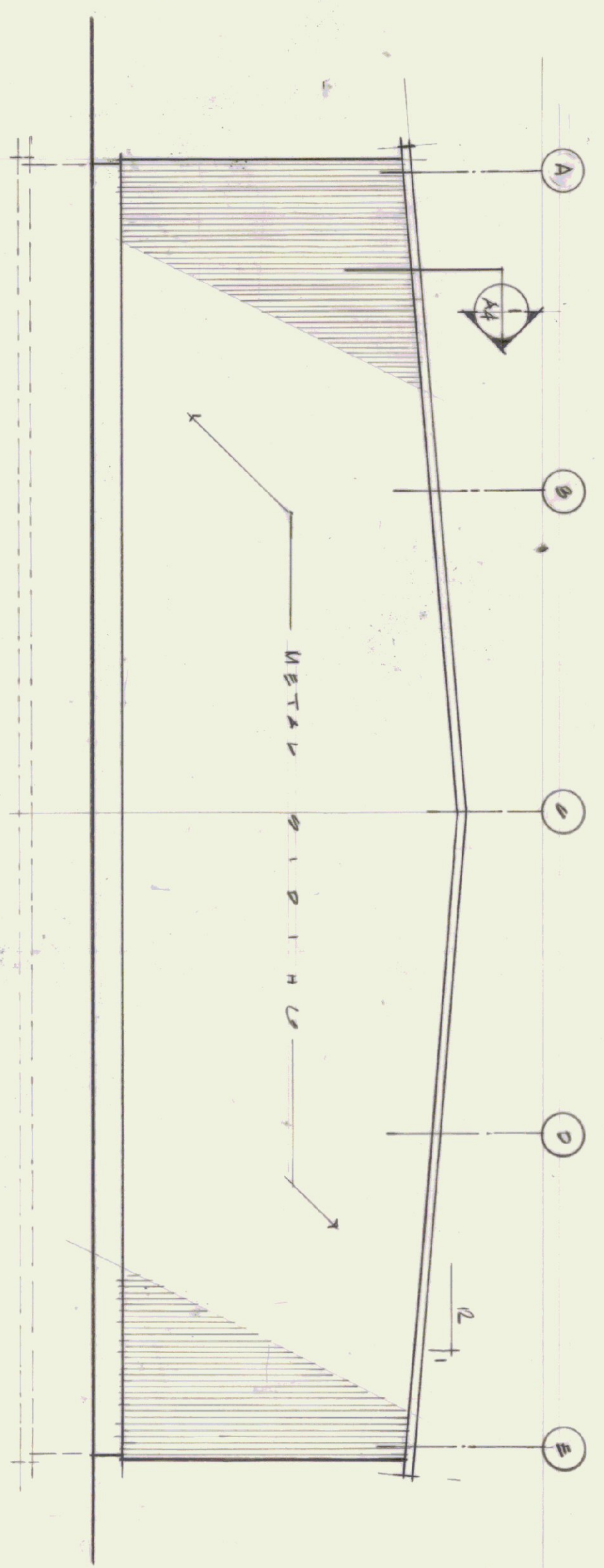




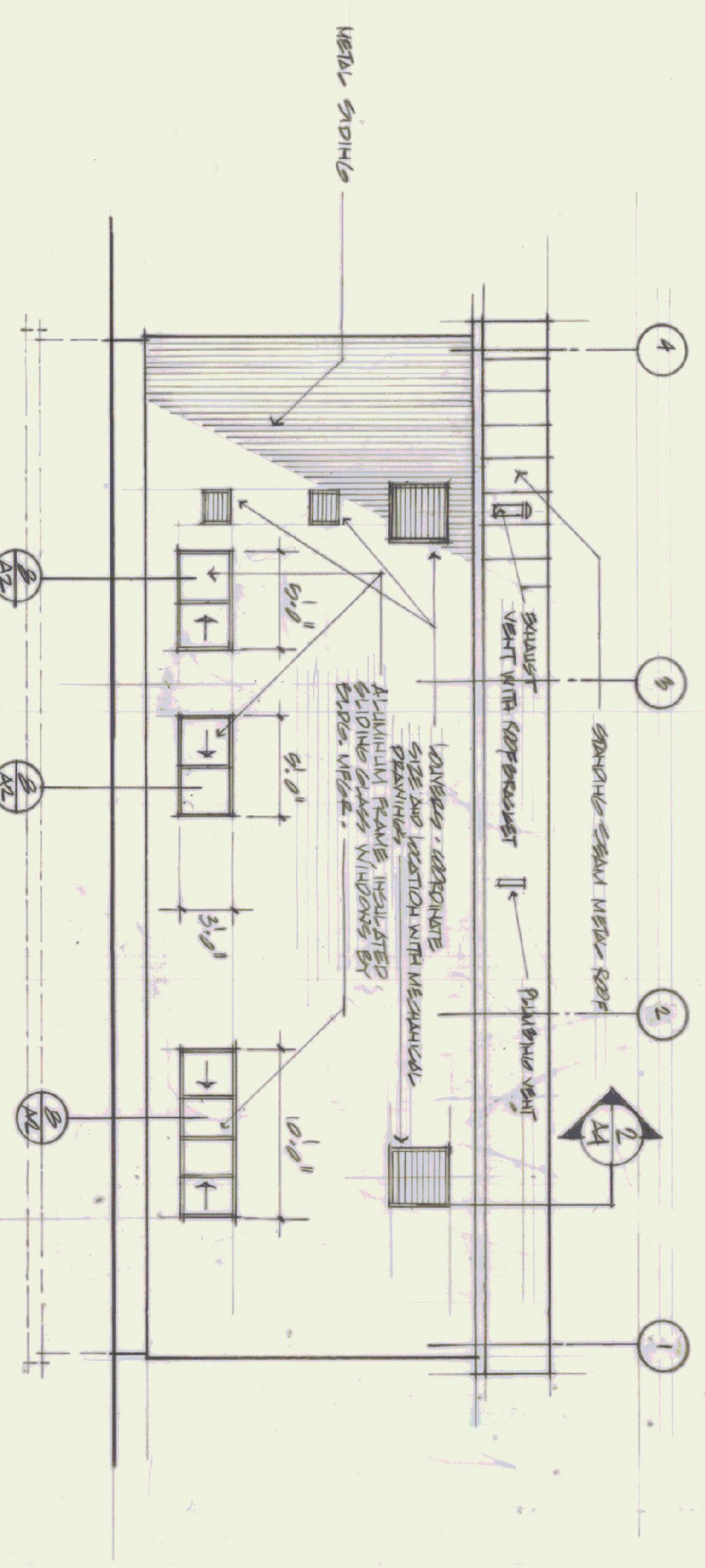
EAST ELEVATION



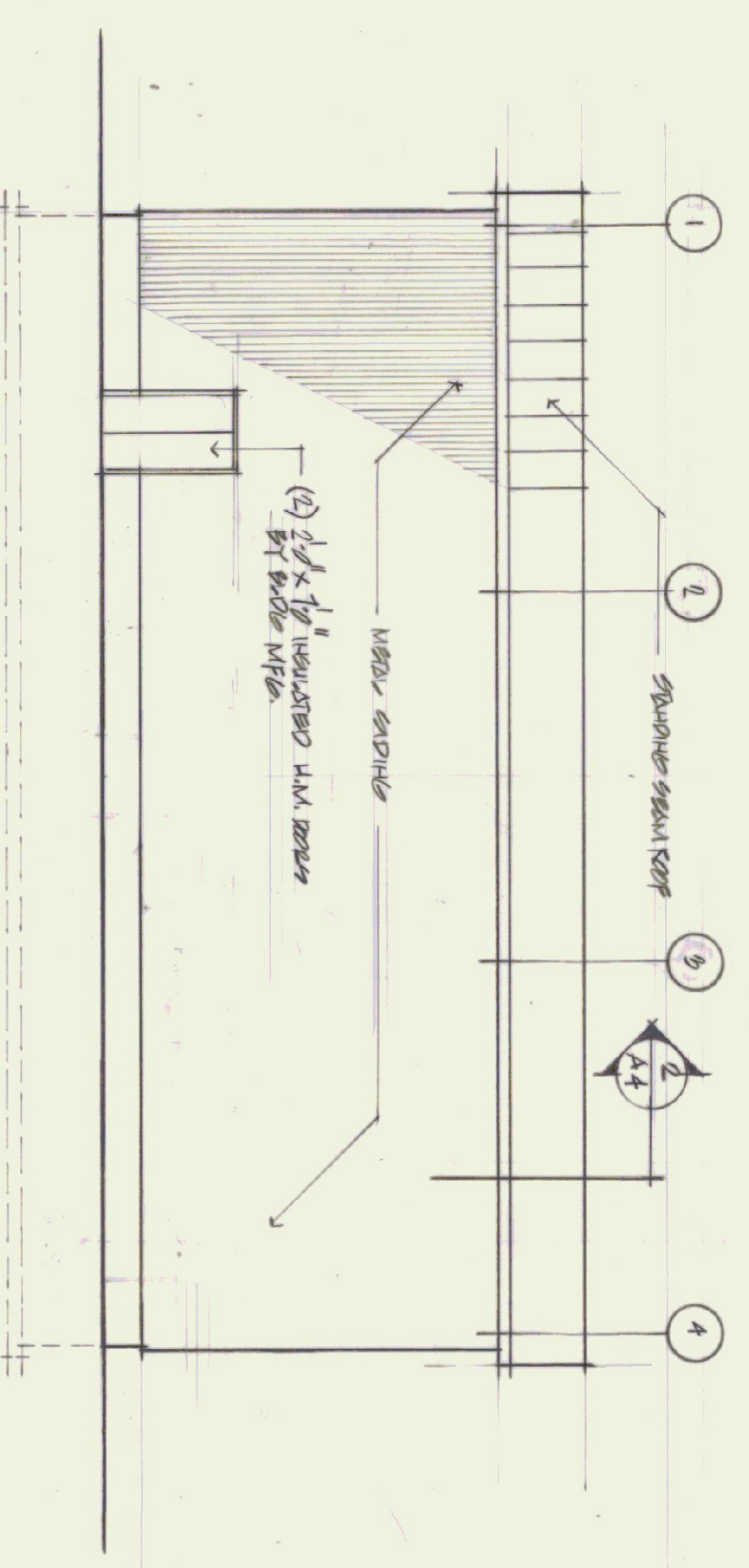
SECTION A



WEST ELEVATION



SOUTH ELEVATION



NORTH ELEVATION



PROJECT:  
NEW AIRPORT HANGER,  
MIDDLEBURY STATE AIRPORT  
TITLE: MIDDLEBURY AIRPORT  
ELEVATIONS  
SECTION A

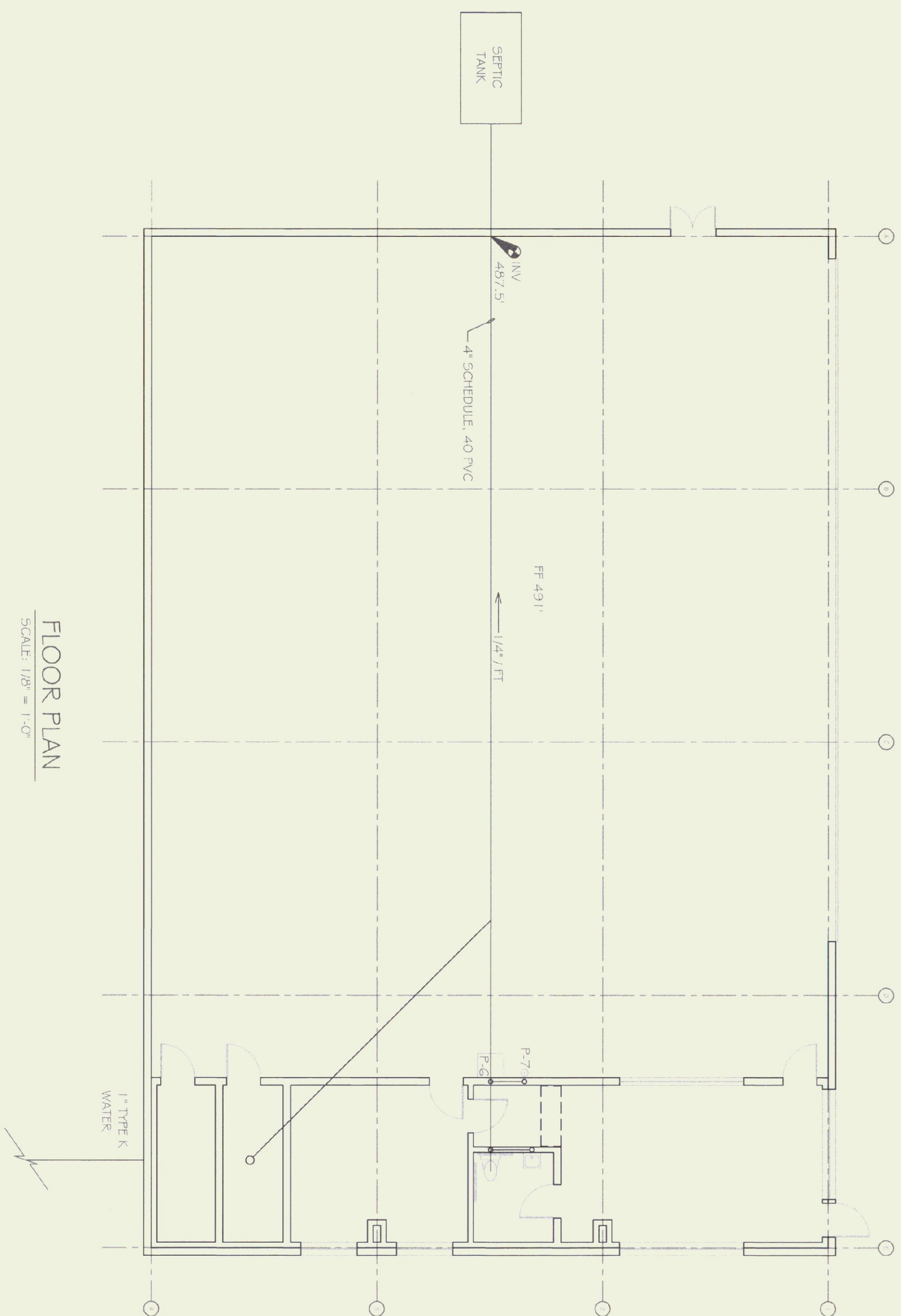
CHARLES E. METZ  
ARCHITECT  
THE GRIST MILL  
BRADFORD VT 05033

DRAWING:  
A02

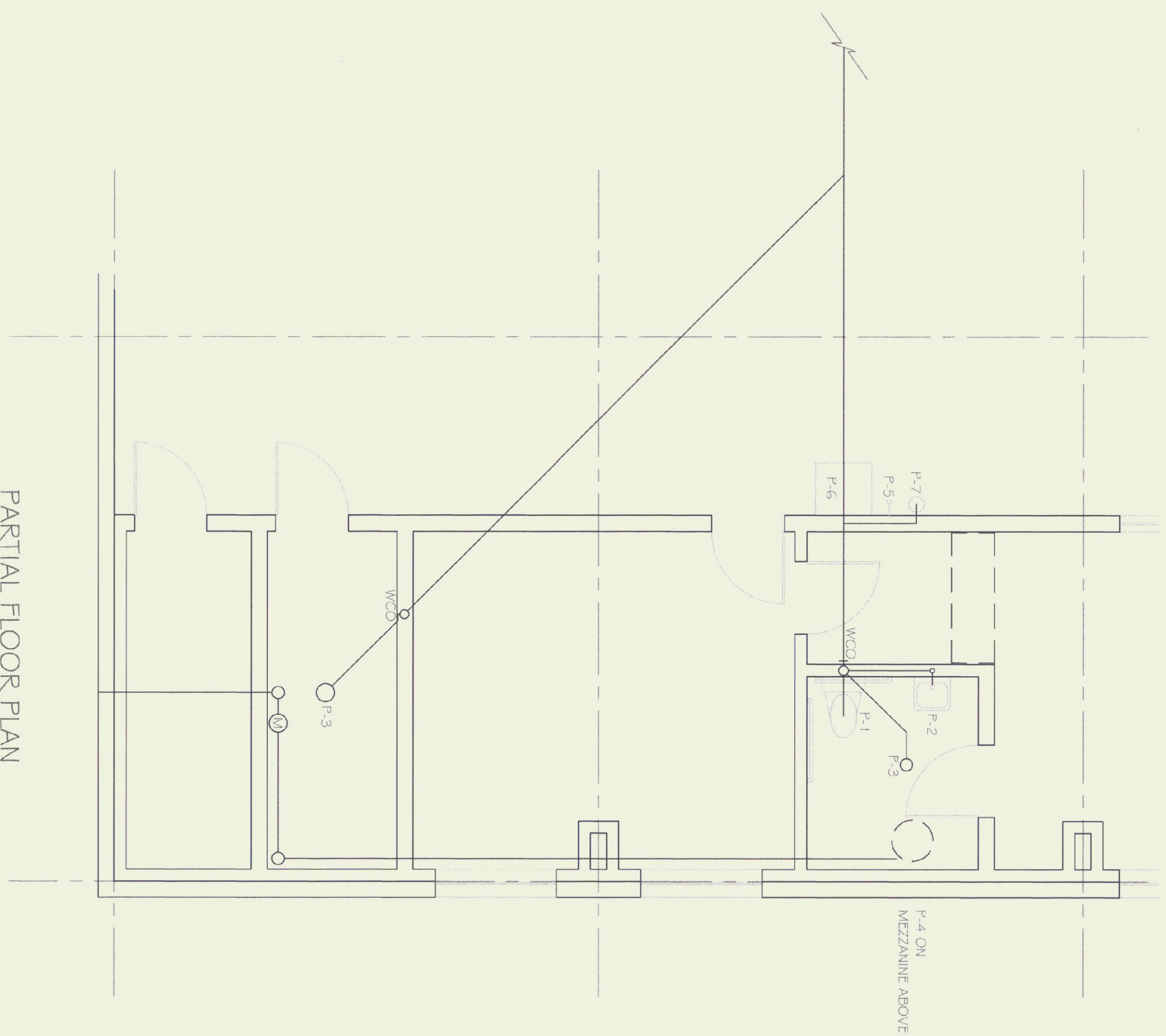






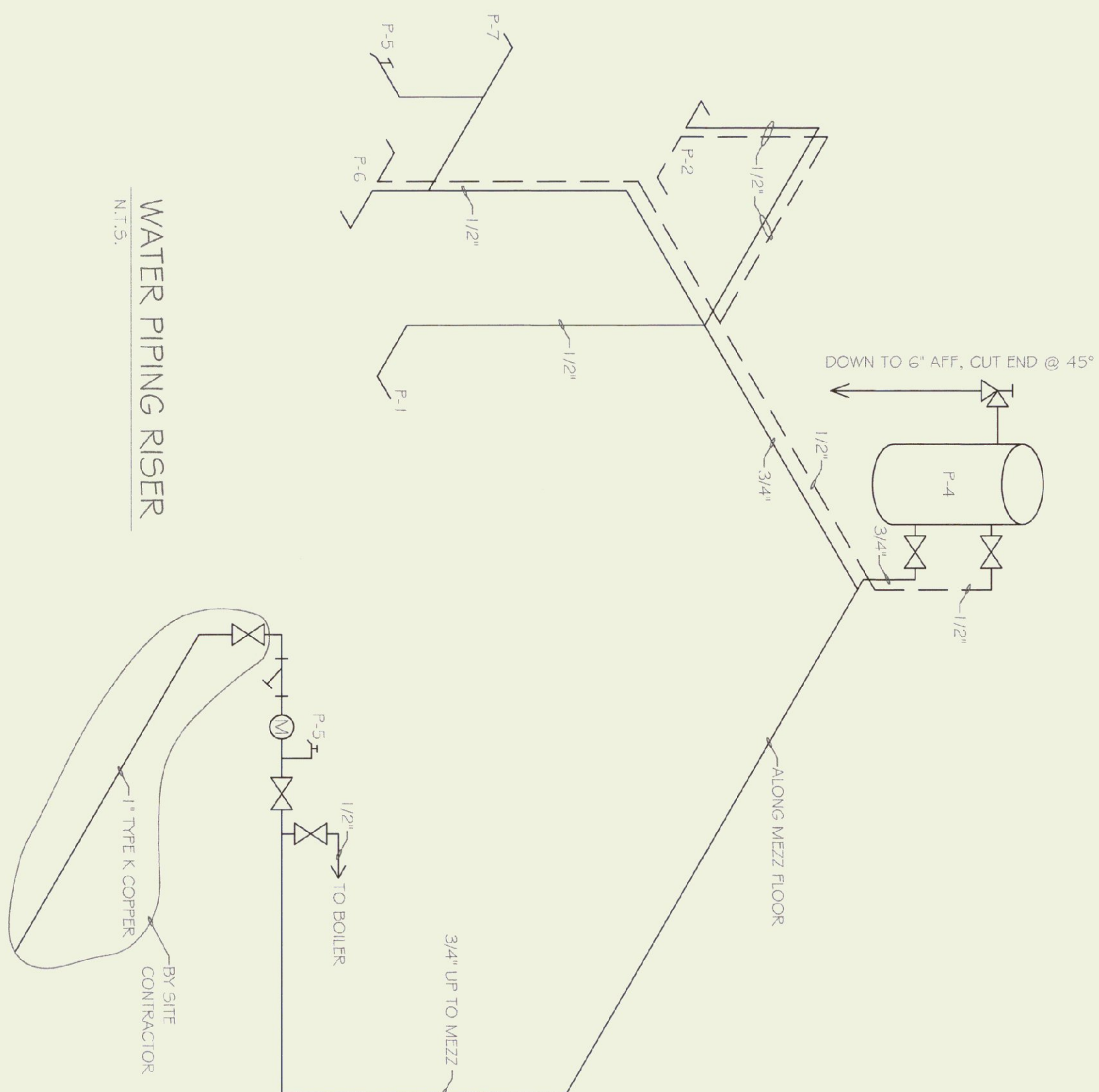


FLOOR PLAN  
SCALE: 1/8" = 1'-0"



PARTIAL FLOOR PLAN  
SCALE: 1/4" = 1'-0"

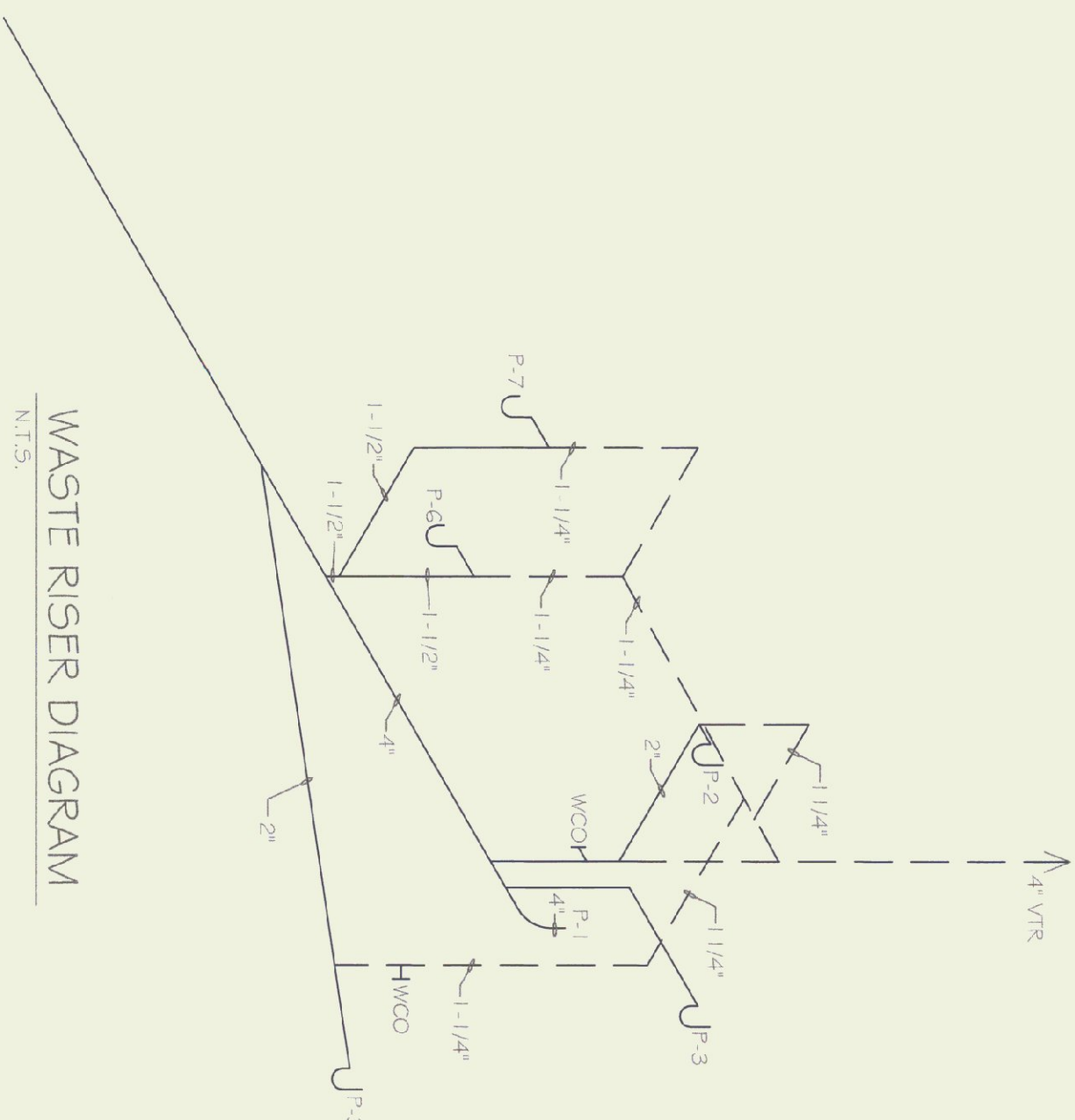
| FIXTURE SCHEDULE |              |                                                                                                                                                                                                                                      |      |      |        |        |      |
|------------------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|--------|--------|------|
| SYMBOL           | FIXTURE      | DESCRIPTION                                                                                                                                                                                                                          | C/W  | H/W  | WASTE  | VENT   | REM  |
| P-1              | TOILET       | AMERICAN STANDARD "CADET," # 21, 68, 100 WHITE VITREOUS CHINA, HANDICAP, SLOPED FRONT, NON-COARSE CONTROLLED, ADJUSTED SLOPED AND WATERSEAL, OPEN FRONT WITH BOLT CAPS. PROVIDE SURFY STOP * BE LOCKABLE)                            | 1/2" | ---- | 4"     | 4" YR  | ---- |
| P-2              | LAVATORY     | AMERICAN STANDARD DECVYE # 0321, 025 WALL HUNG, WHITE VITREOUS CHINA, FRONT OVERFLOW, 4 CENTER FLANGE HOLES, FITTINGS SHALL BE CHROME SINGLE LEVER CONTROL W/POOP UP DRAIN & P-TRAP, AMERICAN STANDARD RELINANT # MODEL # 2365, 000. | 1/2" | 1/2" | 2"     | 1-1/4" | ---- |
| P-3              | FLOOR DRAIN  | SLOTTED ROUND COVER, DRAIN SHALL DISCHARGE THROUGH A P-TRAP, 5" DIA. 1/2" P-RING SHALL HAVE A TWO INCH DRAIN WITH INTEGRAL FLOOR CATCHER.)                                                                                           | ---- | ---- | 2"     | 1-1/4" | ---- |
| P-4              | WATER HEATER | BRAIDROD WHITE 6 GALLON ELECTRIC MATHUSS5                                                                                                                                                                                            | 3/4" | 1/2" | ----   | ----   | ---- |
| P-5              | HOSE BIBB    | WATTS SR - WS26A - 1 VACUUM BREAKER                                                                                                                                                                                                  | 1/2" | ---- | ----   | ----   | ---- |
| P-6              | LAUNDRY TUB  | FLAT 1-1/2" WALL THING, W/STRAINER & PLUGS. FAUCET: AMERICAN STANDARD RELINANT # MODEL #2365, 000.                                                                                                                                   | 1/2" | 1/2" | 1-1/2" | 1-1/2" | ---- |
| P-7              | FEWASH       | GARDIAN EQUIPMENT #G1814 STAINLESS STEEL BOWL WITH WALL MOUNTING BRACKET.                                                                                                                                                            | 1/2" | ---- | 1-1/2" | 1-1/2" | ---- |



WATER PIPING RISER  
N.T.S.



LEGEND



WASTE RISER DIAGRAM









STATE OF VERMONT  
Department of Buildings  
and General Services  
Agency of Administration  
Montpelier, Vermont



MIDDLEBURY STATE AIRPORT  
NEW HANGER BUILDING  
RADIANT HEAT FLOOR PLAN

MIDDLEBURY,

VERMONT

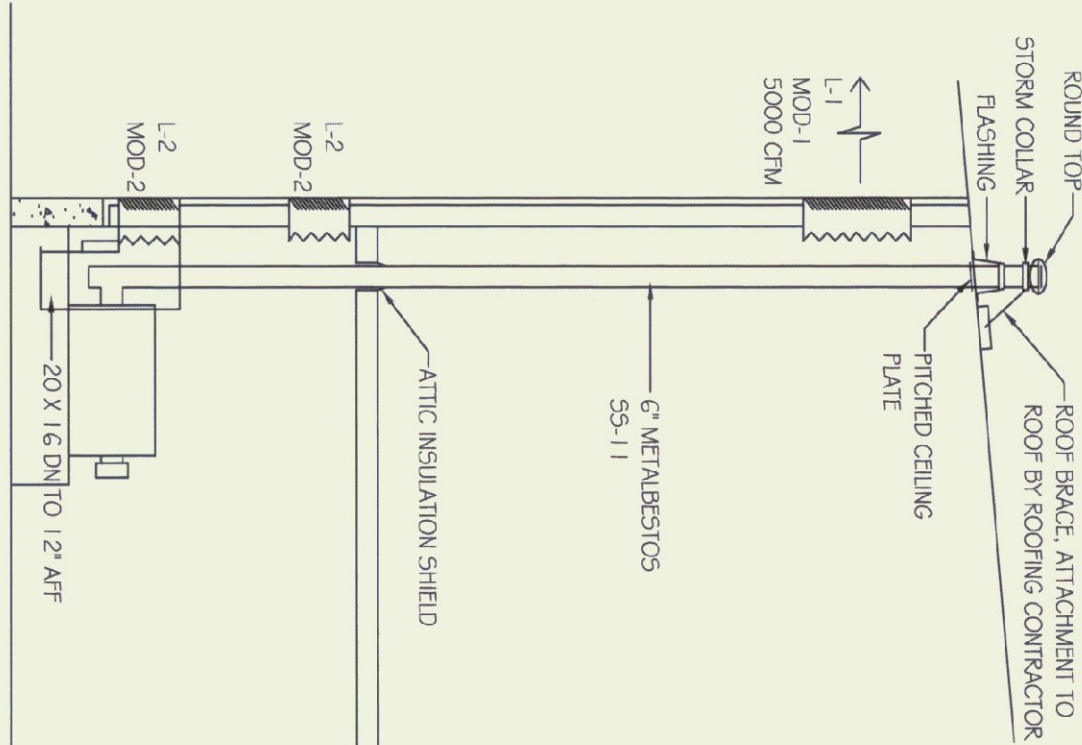
REVISIONS

SCALE: AS NOTED  
DATE: AUGUST 2002  
DRAWN BY: N. HERSEY  
APPR. BY: TEIGH

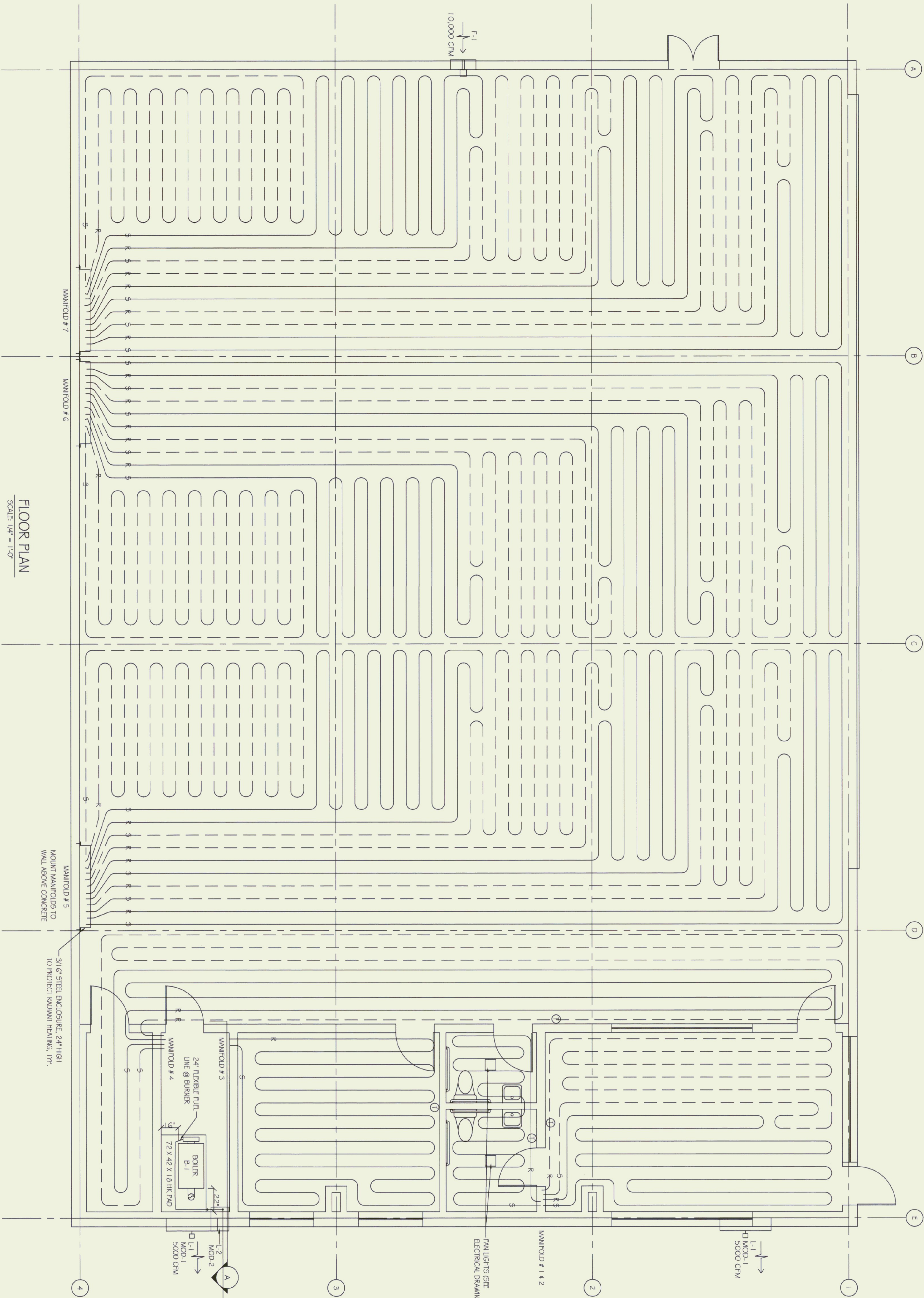
MIDDLEBURY  
AIRPORT  
NEW HANGER  
BUILDING  
RADIANT HEAT  
FLOOR PLAN

M-1

# OF #



A  
BOILER ELEVATION  
SCALE: 1/4" = 1'-0"



FLOOR PLAN  
SCALE: 1/4" = 1'-0"

RADIANT TUBING SCHEDULE

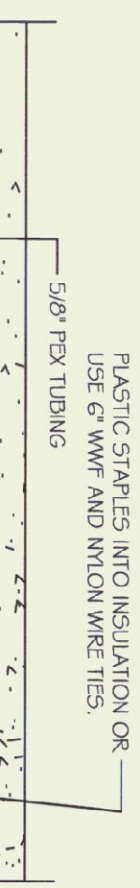
| MANIFOLD # | LOCATION     | RADIANT LOOP # | AREA SERVED | TUBE SIZE (IN FLOOR) | TUBE LENGTH | GPM  | ΔP   | WATER FLOOR TEMP. (SURFACE) | BTU/SF |
|------------|--------------|----------------|-------------|----------------------|-------------|------|------|-----------------------------|--------|
| 1          | WAITING ROOM | 1              | WAITING     | 5/8"                 | 160         | 0.9  | 2.1  | 94                          | 79.7   |
| 1          | WAITING ROOM | 2              | WAITING     | 5/8"                 | 160         | 0.9  | 2.1  | 94                          | 79.7   |
| 2          | BATHROOM     | 3              | BATHROOM    | 5/8"                 | 94          | 0.75 | 0.9  | 105                         | 82.7   |
| 3          | BOILER ROOM  | 4              | OFFICE      | 5/8"                 | 214         | 1.1  | 3.3  | 89                          | 76.9   |
| 4          | BOILER ROOM  | 5              | HANGER      | 5/8"                 | 272         | 1.9  | 12.4 | 90                          | 72.5   |
| 4          | BOILER ROOM  | 6              | HANGER      | 5/8"                 | 260         | 1.8  | 11.0 | 90                          | 72.5   |
| 5          | HANGER D4    | 7              | HANGER      | 5/8"                 | 223         | 1.6  | 7.3  | 90                          | 72.5   |
| 5          | HANGER D4    | 8              | HANGER      | 5/8"                 | 223         | 1.6  | 7.3  | 90                          | 72.5   |
| 5          | HANGER D4    | 9              | HANGER      | 5/8"                 | 223         | 1.6  | 7.3  | 90                          | 72.5   |
| 5          | HANGER D4    | 10             | HANGER      | 5/8"                 | 223         | 1.6  | 7.3  | 90                          | 72.5   |
| 5          | HANGER D4    | 11             | HANGER      | 5/8"                 | 221         | 1.6  | 7.1  | 90                          | 72.5   |
| 5          | HANGER D4    | 12             | HANGER      | 5/8"                 | 226         | 1.6  | 7.5  | 90                          | 72.5   |

RADIANT TUBING SCHEDULE (CONT)

| MANIFOLD # | LOCATION  | RADIANT LOOP # | AREA SERVED | TUBE SIZE (IN FLOOR) | TUBE LENGTH | GPM | ΔP  | WATER FLOOR TEMP. (SURFACE) | BTU/SF |
|------------|-----------|----------------|-------------|----------------------|-------------|-----|-----|-----------------------------|--------|
| 6          | HANGER B4 | 13             | HANGER      | 5/8"                 | 226         | 1.6 | 7.5 | 90                          | 72.5   |
| 6          | HANGER B4 | 14             | HANGER      | 5/8"                 | 221         | 1.6 | 7.1 | 90                          | 72.5   |
| 6          | HANGER B4 | 15             | HANGER      | 5/8"                 | 223         | 1.6 | 7.3 | 90                          | 72.5   |
| 6          | HANGER B4 | 16             | HANGER      | 5/8"                 | 223         | 1.6 | 7.3 | 90                          | 72.5   |
| 6          | HANGER B4 | 17             | HANGER      | 5/8"                 | 223         | 1.6 | 7.3 | 90                          | 72.5   |
| 7          | HANGER B4 | 18             | HANGER      | 5/8"                 | 223         | 1.6 | 7.3 | 90                          | 72.5   |
| 7          | HANGER B4 | 19             | HANGER      | 5/8"                 | 223         | 1.6 | 7.3 | 90                          | 72.5   |
| 7          | HANGER B4 | 20             | HANGER      | 5/8"                 | 223         | 1.6 | 7.3 | 90                          | 72.5   |
| 7          | HANGER B4 | 21             | HANGER      | 5/8"                 | 223         | 1.6 | 7.3 | 90                          | 72.5   |
| 7          | HANGER B4 | 22             | HANGER      | 5/8"                 | 223         | 1.6 | 7.3 | 90                          | 72.5   |
| 7          | HANGER B4 | 23             | HANGER      | 5/8"                 | 221         | 1.6 | 7.1 | 90                          | 72.5   |
| 7          | HANGER B4 | 24             | HANGER      | 5/8"                 | 226         | 1.6 | 7.5 | 90                          | 72.5   |

- NOTES:
1. TUBING RENDS TO BE RADUSED.
  2. DEVIATION FROM LAYOUT SHALL BE SUBMITTED FROM TUBING MANUFACTURERS AUTHORIZED REPRESENTATIVE.
  3. TUBING INSULATION SHALL BE BY MANUFACTURERS AUTHORIZED REPRESENTATIVE.
  4. ALL TUBING TO BE 6" FROM WALLS, SPACED 12" O.C. 100M.

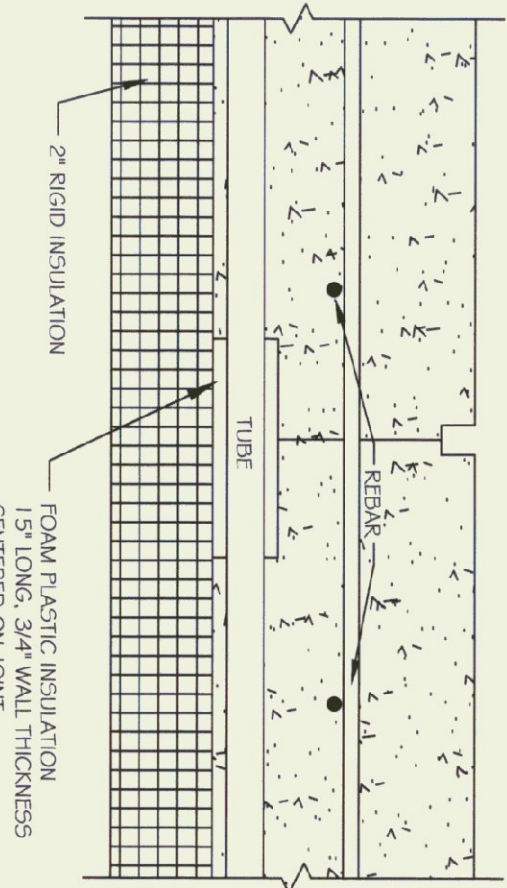




### TYPICAL CROSS SECTION

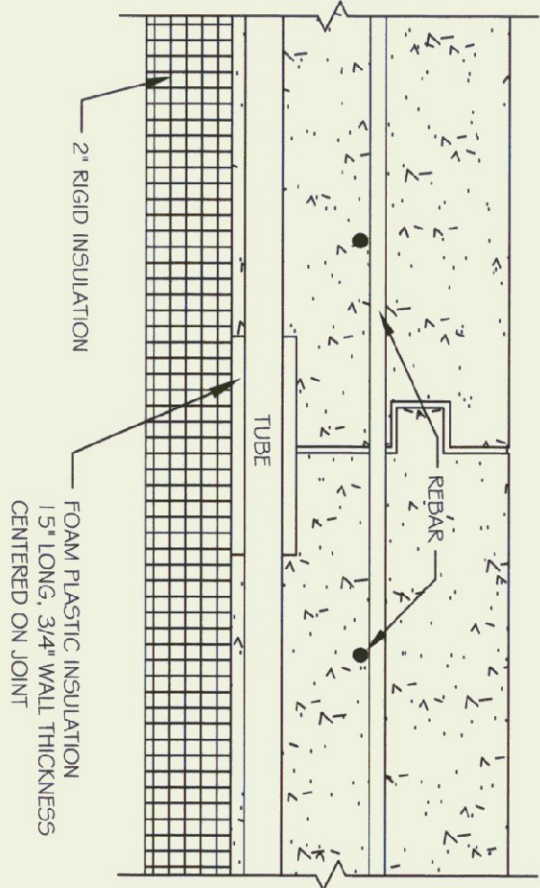
NOT TO SCALE

NOTE:  
CONTRACTOR TO TAKE SPECIAL CARE  
WHEN CUTTING JOINT NOT TO DAMAGE  
TUBING.



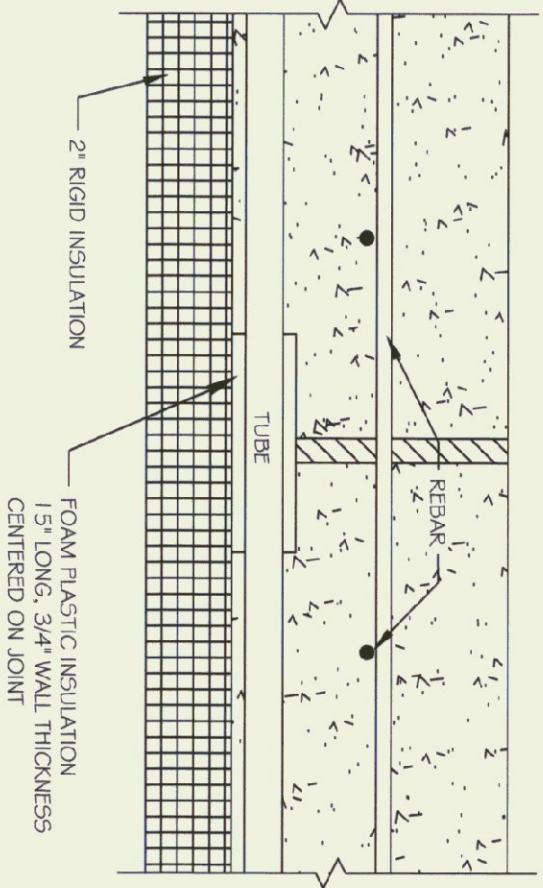
### SAW CUT JOINT

NOT TO SCALE



### CONSTRUCTION JOINT

NOT TO SCALE



### EXPANSION JOINT

NOT TO SCALE

#### SEQUENCE OF CONTROL

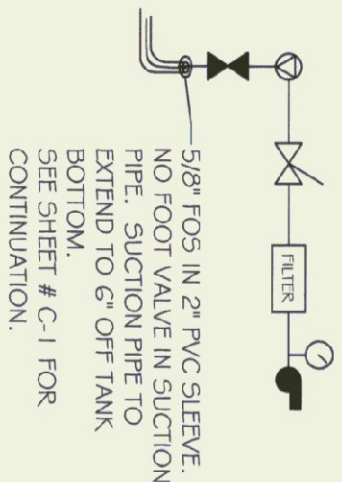
- WHEN OUTDOOR AIR FALLS BELOW 60° (ADJ):
  - BOILER IS ENABLED
  - ~~FAN HANGER PUMP IS ENABLED~~
  - CIRCULATORS C-1 AND C-2 ARE STARTED
  - CIRCULATORS C-3 THROUGH C-6 ARE ENABLED.
- OPERATING AQUASTAT ON BOILER TO MAINTAIN BOILER BETWEEN 140°F AND 160°F.
- CIRCULATOR C-3 TO BE CONTROLLED BY A WIRESSO DUONIK CONTROLLER, CONTROLLER TO SENSE OUTSIDE AIR TEMPERATURE AND LOOP TEMPERATURE AND MODULATE INJECTOR. CIRCULATOR C-3 TO MAINTAIN CALCULATED LOOP SUPPLY SETPOINT. SETPOINT, OFFSET AND RATIO TO BE ADJUSTABLE AT CONTROLLER. SETPOINT TO BE RESET ON OUTDOOR AIR TEMPERATURE BASED ON THE FOLLOWING SCHEDULE:

| OUTSIDE AIR TEMP. | SETPOINT |
|-------------------|----------|
| 40°F              | 20°F     |
| 50°F              | 30°F     |
| 60°F              | 40°F     |

- CIRCULATOR C-4 TO CYCLE ON AND OFF BY THERMOSTAT IN THE OFFICE TO MAINTAIN SETPOINT.
- CIRCULATOR C-5 TO CYCLE ON AND OFF BY THERMOSTAT IN THE BATHROOM TO MAINTAIN SETPOINT.
- CIRCULATOR C-6 TO CYCLE ON AND OFF BY THERMOSTAT IN THE ~~BREAK ROOM~~ <sup>REST ROOM</sup> TO MAINTAIN SETPOINT.
- FAN F-1 TO BE CONTROLLED BY A SPRING WOUND TIMER SWITCH. SEE ELEC. DWGS FOR DETAILS.
- MOD-1 TO OPEN WHENEVER FAN F-1 OPERATES AND CLOSE WHEN F-1 STOPS.
- BOTH MOD-2S TO OPEN WHENEVER BURNER ON BOILER FIRES, OR WHEN TEMPERATURE IN BOILER ROOM EXCEEDS 85°F.

#### LEGEND

|  |                                                                                           |
|--|-------------------------------------------------------------------------------------------|
|  | BALL VALVE, FULL PORTED, 5.5, BALL                                                        |
|  | BALL VALVE WHOSE THREADS & BRAGS CAP                                                      |
|  | STRAINER & BALL VALVE BLOW DOWN                                                           |
|  | MIXING VALVE                                                                              |
|  | TACO 5003-C1                                                                              |
|  | FREEMATIC VALVE                                                                           |
|  | CHECK VALVE                                                                               |
|  | FREEMATIC VALVE                                                                           |
|  | CHECK VALVE                                                                               |
|  | PRESSURE RELIEF VALVE, PIPE TO 6" A.F.F.<br>THERMOSTAT, MOUNT @ 54" A.F.F.<br>THERMOMETER |
|  | TACO FLO CHECK                                                                            |
|  | CIRCULATOR                                                                                |
|  | PRESSURE / VACUUM GAUGE                                                                   |
|  | TOUR-ANDERSON STAD BALANCING VALVE                                                        |
|  | FUEL OIL BURNER                                                                           |
|  | FUEL OIL RATED, FULL PORT, 5.5, BALL VALVE                                                |
|  | SUNTEC RV-38                                                                              |



### FUEL SUPPLY SCHEMATIC

NOT TO SCALE

### EQUIPMENT SCHEDULE

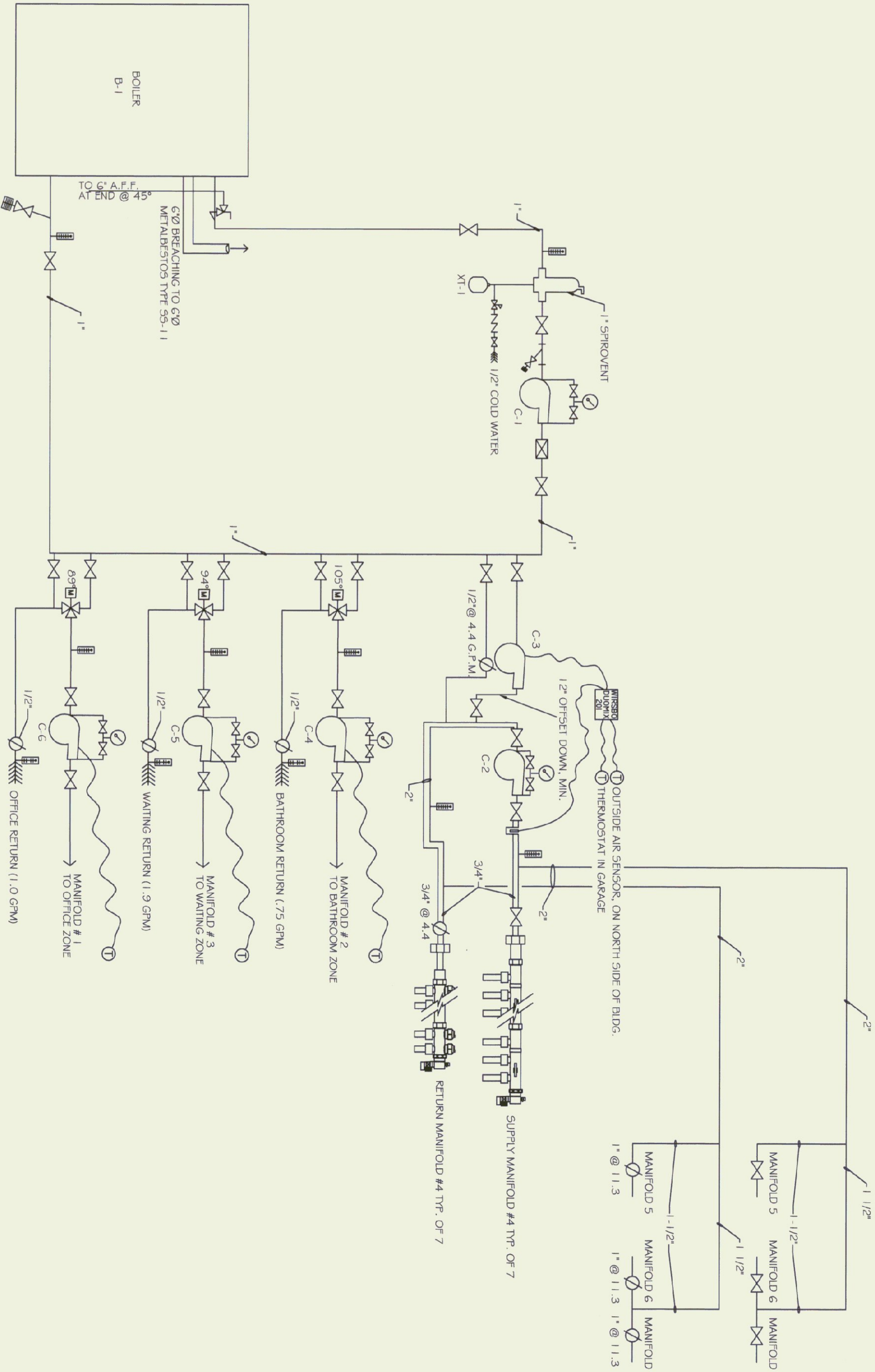
| PLAN SYMBOL | DESCRIPTION   | MANUF. & MODEL     | CHARACTERISTICS                                                    | ELECTRIC VOLTAGE / PHASE | NOTES                                            |
|-------------|---------------|--------------------|--------------------------------------------------------------------|--------------------------|--------------------------------------------------|
| B-1         | BOILER        | BUDRUIS 215-6      | 294,000 BTU/GROSS; 223,000 BTU NET IPR, RFILO 40 SERIES TIO BURNER | 120V/160 2.2 A           |                                                  |
| XT-1        | EXP. TANK     | AMTROL SX 30V      | 14 GALLON TANK 11.3 GALLON ACCEPTANCE                              |                          |                                                  |
| L-1         | RELIEF LOUVER | VENT PRODUCTS 2750 | 44" x 44"                                                          |                          |                                                  |
| MOD-1       | RELIEF DAMPER | VENT PRODUCTS 5705 | 44" x 44"                                                          | 120V/160                 | BEHIND DIRECT COUPLED ACTUATOR SPRING WOUND N.C. |
| L-2         | RELIEF LOUVER | VENT PRODUCTS 2750 | 20" x 16"                                                          |                          |                                                  |
| MOD-2       | RELIEF DAMPER | VENT PRODUCTS 5705 | 20" x 16"                                                          | 120V/160                 | BEHIND DIRECT COUPLED ACTUATOR SPRING WOUND N.C. |

### CIRCULATOR SCHEDULE

| PLAN SYMBOL | SYSTEM            | MANUF. & MODEL | G.P.M. | FEET HEAD | H.P. | ELECTRICAL | R.F.M. | NOTES |
|-------------|-------------------|----------------|--------|-----------|------|------------|--------|-------|
| C-1         | MAIN              | TACO 007       | 8.5    | 6.0       | 1/25 | 120V/160   | 3250   |       |
| C-2         | HANGER ZONE       | TACO 1611      | 38.5   | 15.0      | 1/3  | 120V/160   | 1750   |       |
| C-3         | HANGER INJECTION  | TACO 005       | 4.6    | 3.5       | 1/35 | 120V/160   | 3250   |       |
| C-4         | BATHROOM ZONE     | TACO 005       | 0.75   | 5.0       | 1/35 | 120V/160   | 3250   |       |
| C-5         | WAITING ROOM ZONE | TACO 005       | 1.9    | 4.0       | 1/35 | 120V/160   | 3250   |       |
| C-6         | OFFICE ZONE       | TACO 005       | 1.0    | 4.5       | 1/35 | 120V/160   | 3250   |       |

### FAN SCHEDULE

| PLAN SYMBOL | SYSTEM      | MANUF. MODEL & TYPE | C.F.M. | S.P. IN. | SONES | FAN RPM | HP  | ELECTRICAL | NOTES                        |
|-------------|-------------|---------------------|--------|----------|-------|---------|-----|------------|------------------------------|
| F-1         | HANGER VENT | GREENHECK 585, 113G | 10,000 | .125     | 13.2  | 431     | 1/2 | 120V/160   | WATERHEAT HOOD, SCREEN & BDD |



### HYDRONIC PIPING SCHEMATIC

NOT TO SCALE

ALL PIPING 3/4" UN



STATE OF VERMONT  
Department of Buildings  
and General Services  
Agency of Administration  
Montpelier, Vermont



MIDDLEBURY STATE AIRPORT  
NEW HANGER BUILDING  
RADIANT HEAT DETAILS

MIDDLEBURY,

VERMONT

MIDDLEBURY  
NEW HANGER  
BUILDING  
RADIANT HEAT  
DETAILS

SCALE: AS NOTED  
DATE: AUGUST 2001  
DRAWN BY: N. HERSEY  
APPR. BY: TEIGH

#### REVISIONS

# OF #

M-2



