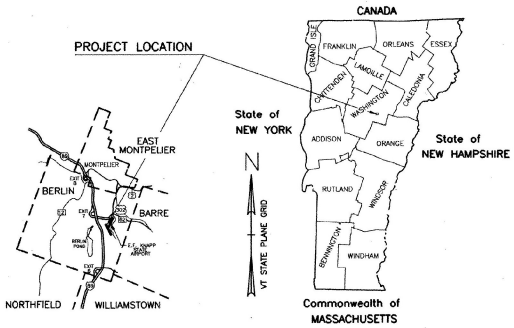
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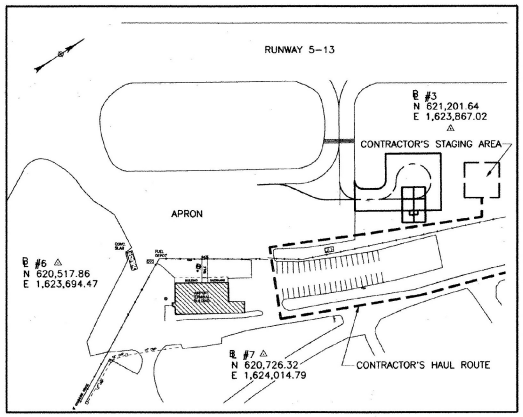
1	TITLE SHEET
2	SITE PLAN
3	GRADING AND DRAINAGE PLAN
4	TYPICAL SECTIONS
5	DETAILS
6	MECHANICAL/ELECTRICAL SITE PLAN
7	TANK PLAN SECTION AND SCHEDULE
8	ELECTRICAL DETAILS
9	ELECTRICAL DETAILS
10	SECTIONS
11	SECTIONS
12	QUANTITY SHEET
13	SIGN DETAIL
	STANDARD D-15 06-01-94
	STANDARD AP-11 06-01-94
	STANDARD AP-13 06-01-94
	STANDARD E-173 08-09-95
	STANDARD E-140 08-30-96

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PROPOSED IMPROVEMENT
TOWN OF BERLIN
COUNTY OF WASHINGTON
E.F. KNAPP STATE AIRPORT
JET A AND AVGAS FUELING SYSTEM
A.I.R. 04-3087

INSTALLATION OF AN AVIATION FUEL SYSTEM, DISMANTLING THE EXISTING FUEL SYSTEM, DRAINAGE, PAVING & PAVEMENT MARKINGS.





SITE LOCATION MAP

RECORD PLANS

CONTRACTOR: E.E. PACKARD MONTPELIER, VT.
RESIDENT ENGINEER: RICHARD COMI
CONSTRUCTION BEGAN: April 14, 1997
CONSTRUCTION COMPLETED: Oct. 21, 1997
RECORD PLANS BY: Charles Lahr

I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.

BY [signature] RESIDENT ENGINEER
DATE 3-13-03

NOTE: Any further information concerning final quantities, amounts or other details relative to this project may be found on microfilm in Central Files.

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE CHIEF ENGINEER.

CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 1990, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON MARCH 15, 1990 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

VERMONT AGENCY OF TRANSPORTATION
APPROVED [signature] Director of RAPT
DATE JUNE 6, 1994

DATUM
VERTICAL _____
HORIZONTAL _____

VERMONT AGENCY OF TRANSPORTATION

APRIL 1993

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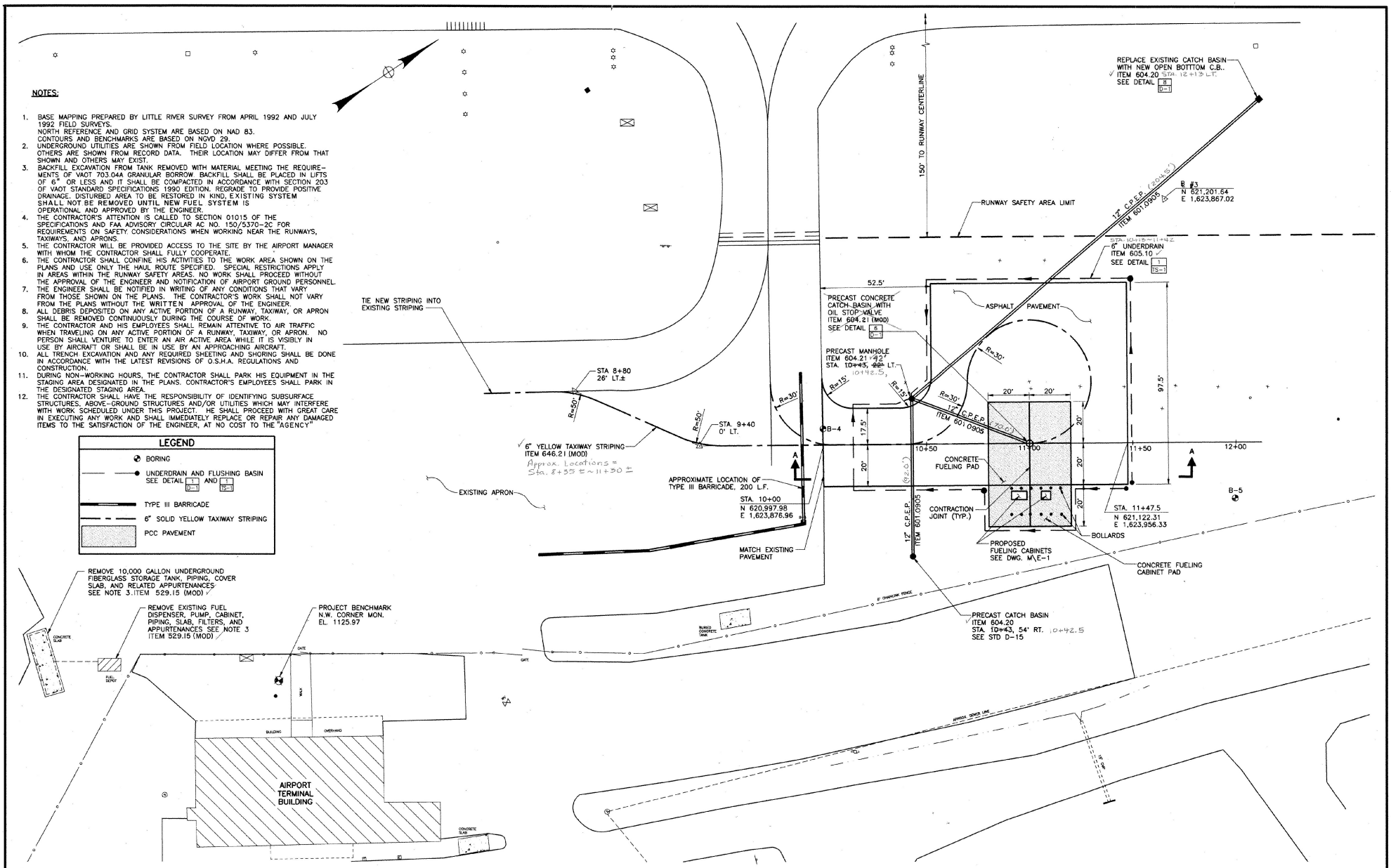
CLOUGH, HARBOUR & ASSOCIATES
ENGINEERS, SURVEYORS & PLANNERS
III WINNERS CIRCLE ALBANY, NEW YORK 12205

SHEET 1 OF 13

C.H.A. Project No. 2972
Date: APRIL 1993

STATE OF VERMONT MICHAEL L. CHURCHILL No. 6951 REGISTERED PROFESSIONAL ENGINEER

P.E. No. 6951



Revisions:	Drawn By:	App'd. By:	Date:

Designed By:	Date:
W.G.	1/93
Drawn By:	Date:
T.J.B., P.M.	1/93
Checked By:	Date:
M.L.C.	4/93

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E.F. KNAPP STATE AIRPORT

TOWN OF BERLIN

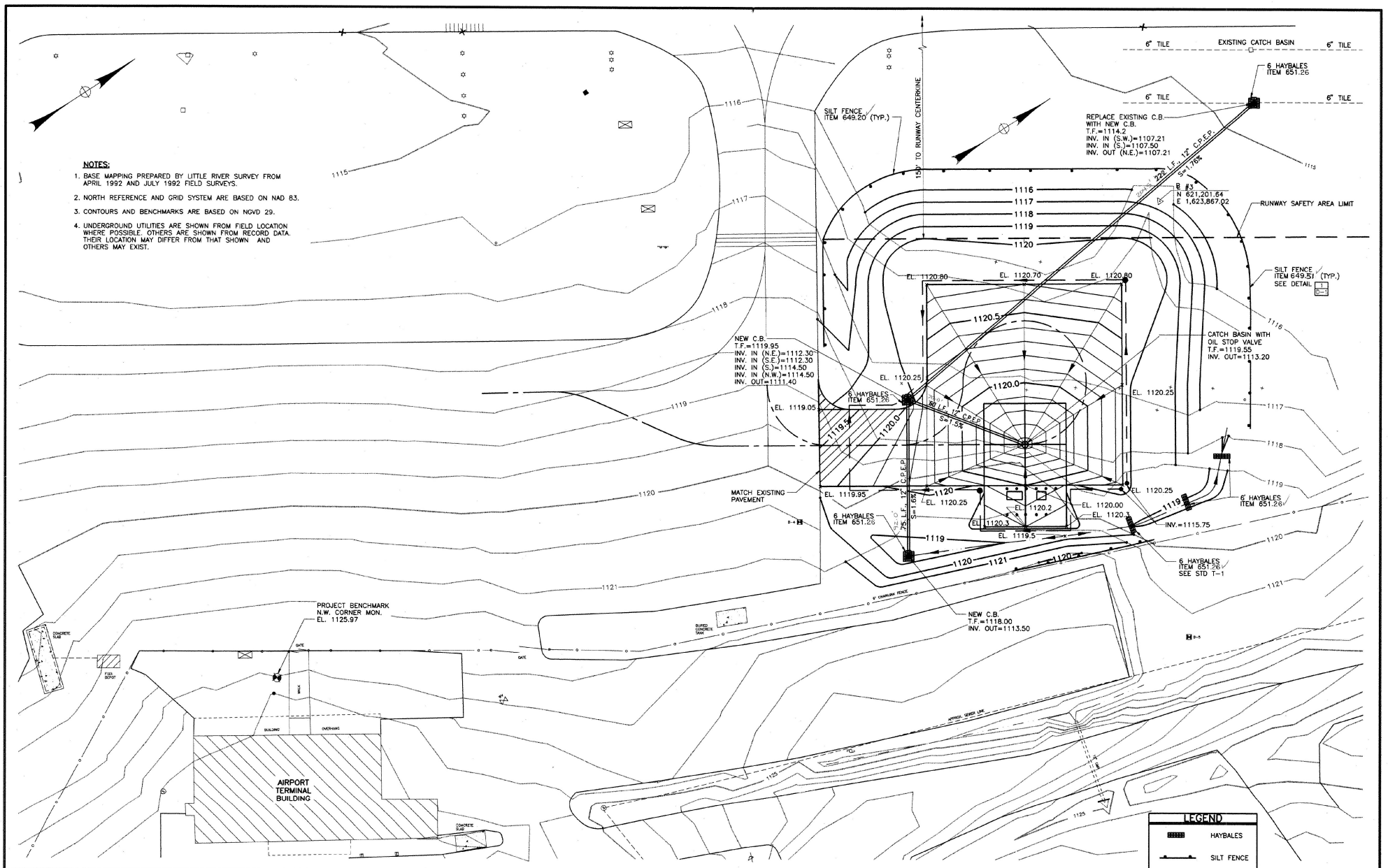
JET A AND AVGAS FUELING SYSTEM
A.I.R. 04-3087

SITE PLAN

SCALE: 1" = 20' | DATE: APRIL 1993

Drawing No. S-1

SHEET 2 OF 13



Revisions:	Drawn By:	App'd. By:	Date:

Designed By: M.L.C.	Date: 1/93
Drawn By: P.M.	Date: 1/93
Checked By: M.L.C.	Date: 4/93

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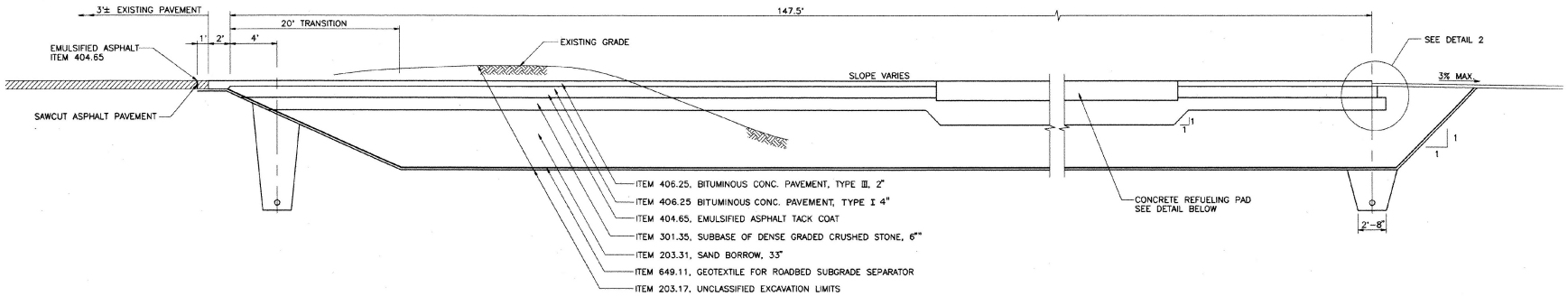
TOWN OF BERLIN

JET A AND AVGAS FUELING SYSTEM
A.I.R. 04-3087

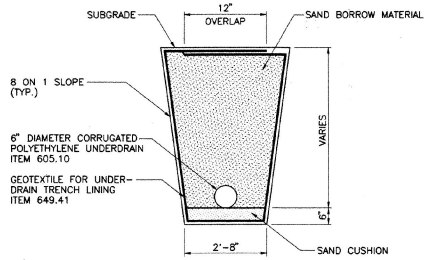
GRADING AND DRAINAGE PLAN

Drawing No. S-2

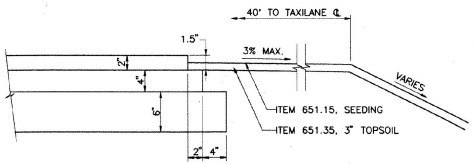
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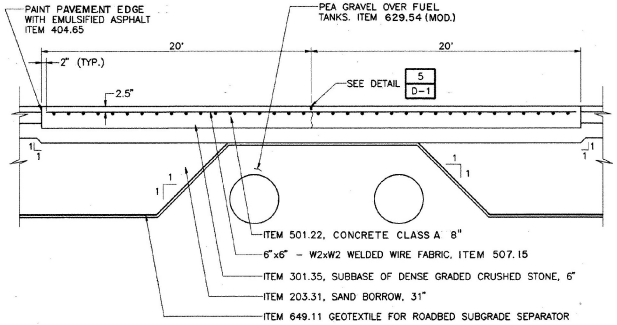
AIRCRAFT REFUELING APRON
NO SCALE
SECTION A–A



1 **UNDERDRAIN CONSTRUCTION DETAIL**
NO SCALE



2 **PAVEMENT EDGE DETAIL**
NO SCALE



3 **CONCRETE REFUELING PAD DETAIL**
NO SCALE

Revisions:	Drawn By:	Appr'd. By:	Date:

Designed By:	Date:
W.F.G.	1/93
Drawn By:	Date:
P.M.	1/93
Checked By:	Date:
M.L.C.	1/93

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VERMONT AGENCY OF TRANSPORTATION

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TOWN OF BERLIN

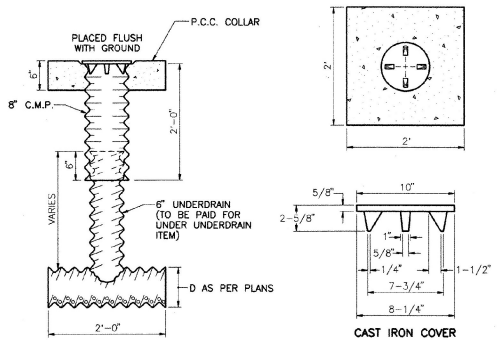
JET A AND AVGAS FUELING SYSTEM
A.I.R. 04-3087

TYPICAL SECTIONS

SCALE: AS SHOWN | DATE: APRIL 1994

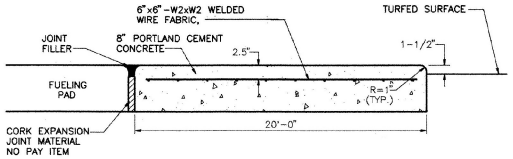
Drawing No. **TS-1**

SHEET 4 OF 13

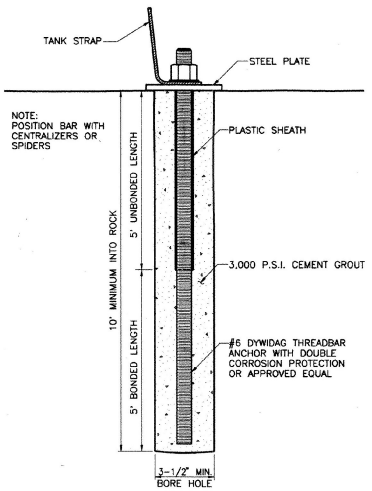


FLUSHING BASINS AT BEGINNING OF LINE SHALL HAVE A 90° ELBOW RATHER THAN A TEE AS SHOWN ABOVE. (ELBOW TO BE PAID FOR UNDER UNDERDRAIN ITEM)

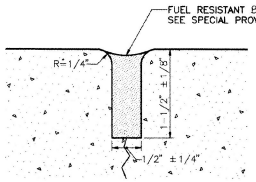
1 UNDERDRAIN FLUSHING BASIN
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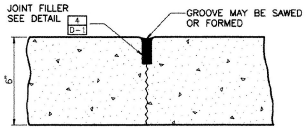
2 FUEL CABINET PAD DETAIL
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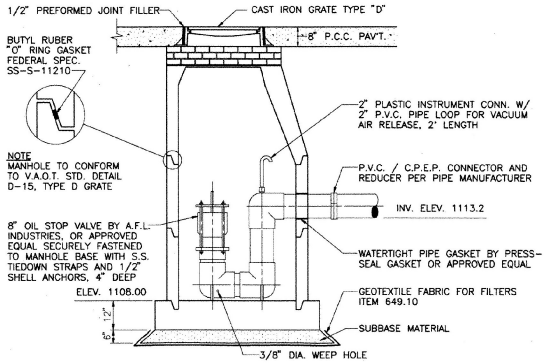
3 ROCK ANCHOR
NO SCALE



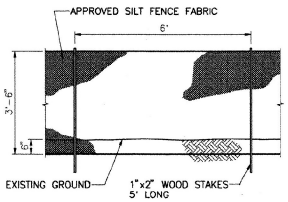
4 JOINT FILLER DETAIL
NO SCALE



5 CONTRACTION JOINT DETAIL
NO SCALE

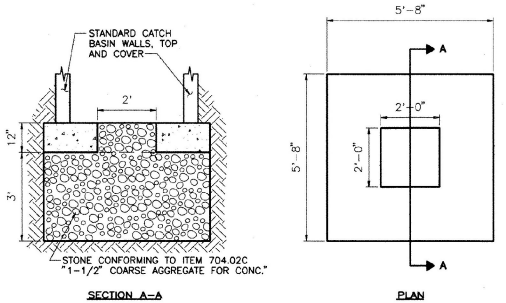


6 CATCH BASIN WITH OIL STOP VALVE
NO SCALE



7 SILT FENCE DETAIL
NO SCALE

ITEM 649.51



8 OPEN CONCRETE BASE DETAIL
NO SCALE

Revisions:	Drawn By:	App'd. By:	Date:

Designed By:	Date:
M.L.C.	1/93
Drawn By:	Date:
P.M.	1/93
Checked By:	Date:
M.L.C.	4/93

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E.F. KNAPP STATE AIRPORT

TOWN OF BERLIN

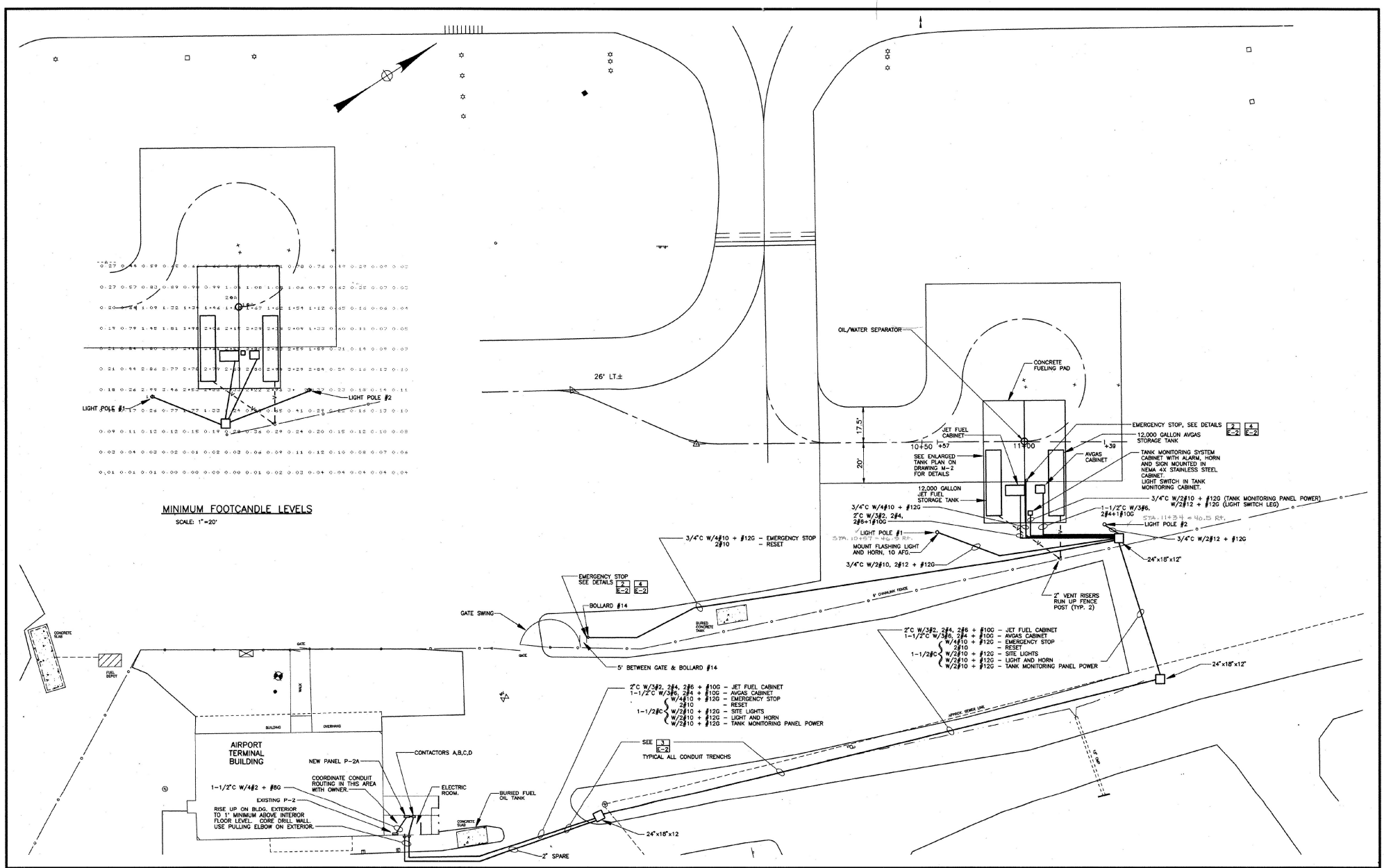
JET A AND AVGAS FUELING SYSTEM
A.I.R. 04-3087

DETAILS

SCALE: AS SHOWN | DATE: APRIL 1993

Drawing No. D-1

SHEET 5 OF 13



Revisions:	Drawn By:	App'd. By:	Date:

Designed By: J.J.R., B.C., J.R.S. 1/93
Drawn By: D.W., B.C. 1/93
Checked By: D.F., M.V. 1/93
Date:

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JAMES R. RYAN No. 6213 LICENSED PROFESSIONAL ENGINEER

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E.F. KNAPP STATE AIRPORT

TOWN OF BERLIN

JET A AND AVGAS FUELING SYSTEM
A.I.R. 04-3087

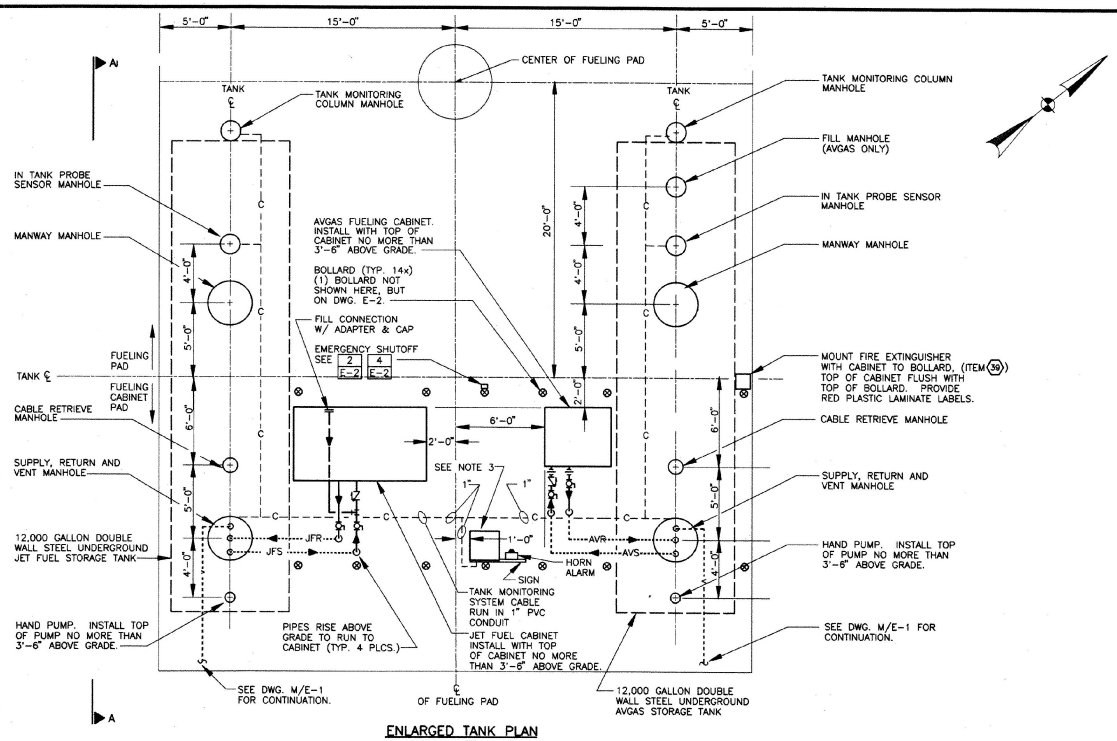
MECHANICAL / ELECTRICAL SITE PLAN

SCALE: 1" = 20' DATE: APRIL 1993

Drawing No. **M/E-1**

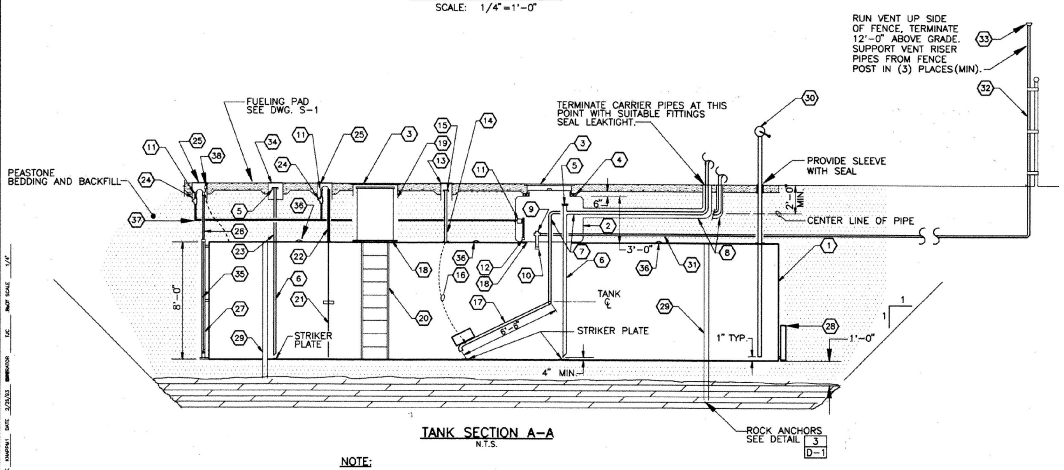
SHEET 6 OF 13

FILE NAME 2972ME1 DATE 1/22/93 OPERATOR DMK PLOT SCALE 1=20



ENLARGED TANK PLAN

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



TANK SECTION A-A

N.T.S.

NOTE:

THIS SECTION TYPICAL FOR AVGAS AND JET TANKS. SEE NOTES AND SCHEDULE FOR DIFFERENCES.

EQUIPMENT SCHEDULE

	DESCRIPTION	MANUFACTURER & MODEL	REMARKS
1	12000 GALLON DOUBLE WALL STEEL STI-P3 STORAGE TANK	HIGHLAND OR EQUAL	
2	FIBERGLASS PIPING SUMP WITH COVER LID	OWENS CORNING OR EQUAL	3'-6" DIA.
3	MANHOLE AND COVER	UNIVERSAL 98-3610 OR EQUAL	3'-0" DIA 1/2" THICK RAINTIGHT BOLTED COVER
4	2" THICK COMPRESSIBLE FOAM BOARD		
5	4" ADAPTER AND CAP	UNIVERSAL 724-4040 & 733-40 OR EQUAL	
6	4" DROP TUBE	UNIVERSAL 723-4012 OR EQUAL	
7	3" PRODUCT PIPE (JET FUEL) 2" PRODUCT PIPE (AVGAS)		SEE SPECIAL PROVISION 8F SCHEDULE 40 STAINLESS STEEL
8	6" CARRIER PIPE (JET FUEL) 4" CARRIER PIPE (AVGAS)		SEE SPECIAL PROVISION 8F SCHEDULE 40 STAINLESS STEEL
9	VENT VALVE ASSEMBLY (2"x2")	UNIVERSAL V421-2020 OR EQUAL	CAP TOP AND UNUSED SIDE OUTLET
10	FLOAT VENT VALVE	UNIVERSAL 37-201618	
11	EXPLOSION PROOF/WEATHERPROOF JUNCTION BOX		
12	CONTAINMENT SUMP SENSOR	VEEDER ROOT OR EQUAL	
13	8" DIA. MANHOLE	UNIVERSAL 60-8075	CAST IRON RING & COVER W/ GALV. SKIRT, (USED FOR RETRIEVING CABLE GUIDE)
14	2" RISER PIPE FOR CABLE GUIDE		SCHEDULE 40 STAINLESS STEEL
15	2" THREAD ADAPTER & WATERTIGHT PIPE CAP		ATTACH CABLE END TO INSIDE OF CAP
16	FLOATING SUCTION CABLE	GAMMON OR EQUAL	STAINLESS STEEL W/PLASTIC COATING
17	FLOATING SUCTION ASSEMBLY	GAMMON GTP-1644-3-5-39	ALUM. CONST. W/STAINLESS STL. BOLTS & FASTENERS, DUAL BALL RACK SWIVEL
18	30" I.D. MANHOLE	HIGHLAND OR EQUAL	PROVIDE MANUFACTURER'S STANDARD MANHOLE W/(4) 4" FITTINGS (FITTINGS NOT REQ. @ MANWAY)
19	30" I.D. MANWAY EXTENSION W/BOLTED WATERTIGHT COVER	HIGHLAND OR EQUAL	
20	LADDER	HIGHLAND OR EQUAL	PROVIDE MANUFACTURER'S LADDER W/TANK
21	TANK SENSOR PROBE	VEEDER ROOT OR EQUAL	PROVIDE SENSOR, FLOATS, THREADED WELL, CAP, CABLE & ALL ACCESSORIES
22	4" RISER PIPE FOR TANK SENSOR PROBE		SCHEDULE 40 STAINLESS STEEL
23	4" RISER PIPE FOR TANK FILL		PROVIDE ON AVGAS TANK ONLY SCHEDULE 40 STAINLESS STEEL
24	EPOXY FILLED CONDUIT SEAL OFF		
25	MONITOR TYPE MANHOLE	UNIVERSAL 98MW-1810	CAST IRON RING AND COVER (15" DIA. MIN.)
26	TANK MONITOR COLUMN EXTENSION RISER PIPE		SCHEDULE 40 STAINLESS STEEL
27	TANK MONITOR COLUMN	HIGHLAND OR EQUAL	PROVIDE AS PART OF TANK
28	TANK SACRIFICIAL ANODE	HIGHLAND OR EQUAL	PROVIDE AS PART OF STI-P3 TANK SYSTEM
29	HOLD DOWN STRAPS, TURNBUCKLES, BALLAST PAD ANCHOR BOLTS	HIGHLAND OR EQUAL	PROVIDE QUANTITIES, LOCATIONS AND METHODS AS RECOMMENDED BY MANUFACTURER
30	HAND PUMP	GAS BOY MOD. 1720	
31	2" VENT PIPE		SEE SPECIAL PROVISIONS 8F SCHEDULE 40 STAINLESS STEEL
32	2" VENT RISER PIPE		TYPE 304 STAINLESS STEEL
33	2" PRESSURE/VACUUM VENT	UNIVERSAL 485-2080	
34	FILL MANHOLE	UNIVERSAL 71	CAST IRON RING AND COVER, FLEXIBLE BELLOWS, INTERNAL DRAIN
35	TANK MONITOR COLUMN SENSOR SWITCH	VEEDER ROOT OR EQUAL	FIBERGLASS, SIZE AS REQUIRED TO ACCOMMODATE DROP TUBE
36	SPARE NOZZLE W/CAP		
37	TANK MONITORING SYSTEM CONDUIT/CABLE		1" PVC CONDUIT, SCH. 80
38	TANK CATHODIC PROTECTION MONITORING CONNECTION	HIGHLAND OR EQUAL	PROVIDE AS PART OF STI-P3 TANK SYSTEM
39	FIRE EXTINGUISHER WITH CABINET	PEM-ALL PA-200ABC WITH 105-20 CABINET	MULTI-PURPOSE DRY CHEMICAL TYPE 20LB CAPACITY, IN WEATHERPROOF CABINET

LEGEND

- JFS — JET FUEL SUPPLY PIPE
- JFR — JET FUEL RETURN PIPE
- AVS — AVGAS SUPPLY PIPE
- AVR — AVGAS RETURN PIPE
- C — BELOW GRADE CONDUIT
- V — TANK VENT PIPE – BELOW GRADE
- BALL VALVE
- CHECK VALVE
- GATE VALVE
- UNION
- INDICATES DIRECTION OF FLOW
- PIPE DROP
- ℄ CENTERLINE

NOTES:

1. PROVIDE PROPER IDENTIFICATION LABELING OF THE FUELING CABINET AND ALL ABOVE GROUND PIPING ENTERING AND EXITING CABINET, PER SPECIFICATIONS IN AMERICAN PETROLEUM INSTITUTE MANUAL.
2. SUBMIT MANUFACTURER'S LATEST PRODUCT DATA FOR EACH ITEM LISTED ABOVE IN THE EQUIPMENT SCHEDULE.
3. TANK MONITORING PANEL MOUNTED IN NEMA 4X ENCLOSURE. MOUNT ENCLOSURE SECURELY TO UNISTRUT MOUNTED TO BOLLARD. MOUNT ALARM LIGHT/HORN/SILENCE SWITCH ON UNISTRUT. ALSO MOUNT A 12"x12" ALUMINUM SIGN ON UNISTRUT, ON THE SIDE OF THE ENCLOSURE, WITH THE FOLLOWING MESSAGE:

URGENT
IF THE LEAK DETECTION ALARM OR ALARM LIGHT IS ACTIVATED, CALL THE FOLLOWING NUMBER:
1-800-541-5005

SIGN SHALL BE PAINTED WHITE WITH RED LETTERS. TOP OF CABINET SHALL BE NO MORE THEN 3'-6" ABOVE GRADE.

Revisions:	Drawn By:	App'd. By:	Date:

Designed By: JJP Date: APRIL 1993
Drawn By: DMW Date: APRIL 1993
Checked By: DJF Date: APRIL 1993

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STATE OF VERMONT JAMES D. RUSS No. 5213 PROFESSIONAL ENGINEER

VERMONT AGENCY OF TRANSPORTATION

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CHA Project No. 2972

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TOWN OF BERLIN

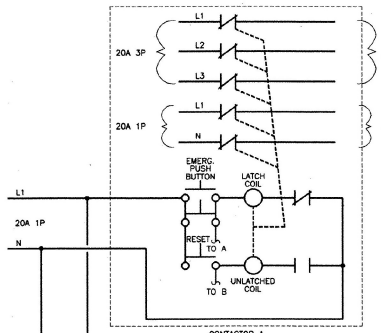
JET A AND FUELING SYSTEM
AIR 04-3087

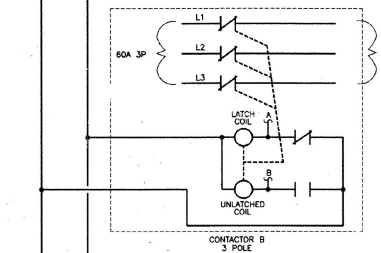
TANK PLAN
SECTION AND SCHEDULE

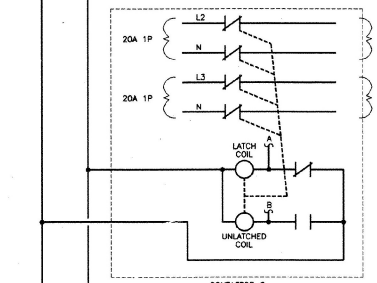
Drawing No. M-2

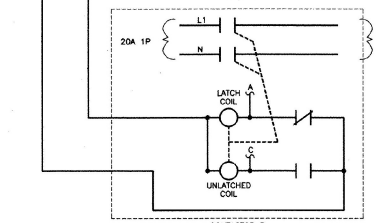
SCALE: AS SHOWN DATE: APRIL 1993 SHEET 7 OF 13

FILE NAME: EXAMPLE1 DATE: 2/26/93 ERRORCOR FIG. NOT SCALE 1/4"









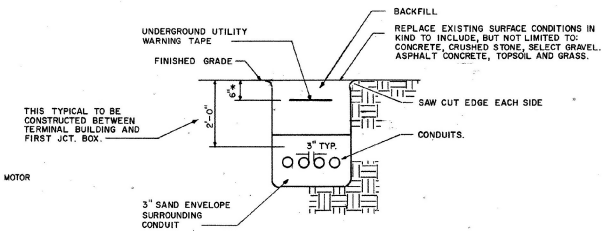
CONTACTOR LAYOUT
N.T.S.

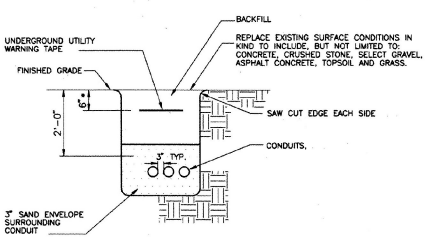
A – EMERGENCY STOP
B – RESET
C – ACKNOWLEDGE

ALL HOMERUNS ARE TO PANEL P2A.

NOTES:

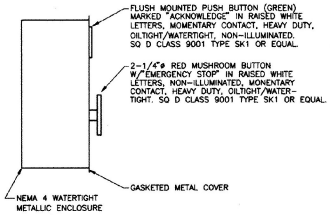
1. CONTACTOR OPERATION:
   - EMERGENCY STOP BUTTON SHALL ACTIVATE THE LATCH COILS OF CONTACTORS A, B, C AND D. CONTACTORS A, B AND C WILL SHUT OFF ALL POWER TO THE FUEL CABINETS. CONTACTOR D WILL SUPPLY POWER TO THE HORN AND STROBE LIGHT.
   - THE ACKNOWLEDGE BUTTON SHALL ACTIVATE THE UNLATCH COIL OF CONTACTOR D TO SHUT OFF POWER TO THE HORN AND STROBE LIGHT.
   - THE RESET BUTTON SHALL ACTIVATE THE UNLATCH COILS OF CONTACTORS A, B AND C, TO RESTORE POWER TO THE FUEL CABINETS.





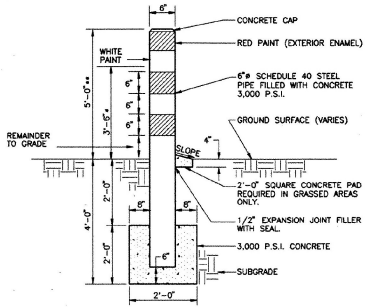
3 / M/E-1 UNDERGROUND CONDUIT
N.T.S.

* – 6" BELOW SURFACE IF GRASS
6" BELOW BOTTOM OF PAVED SURFACES
TRENCH – ITEM 204.20



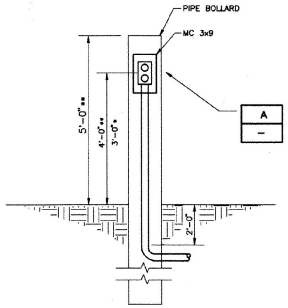
1 / – EMERGENCY STOP STATION
N.T.S.

– SEE DETAIL 4, THIS SHEET, FOR MOUNTING



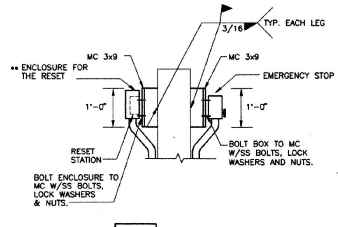
2 / M/E-1 PIPE BOLLARD DETAIL
N.T.S.

* – BOLLARDS AROUND FUEL CABINETS
** – BOLLARD #14



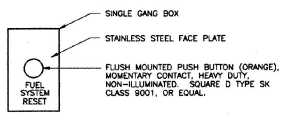
4 / M/E-1 EMERGENCY STOP MOUNTING DETAIL
N.T.S.

* – AT BOLLARD BY FUEL CABINET
** – BOLLARD #14



A / – MOUNTING DETAIL
N.T.S.

ENCLOSURE FOR RESET: 16 GAUGE TYPE 304 STAINLESS STEEL WITH CONTINUOUSLY WELDED SEAMS. CONTINUOUS DOOR HINGE. DIMENSIONS: 8"h x 6"w x 4"d. DOOR TO BE GASKETED, WATER TIGHT AND LOCKABLE.



5 / M/E-1 RESET STATION
N.T.S.

MOUNT ON BOLLARD #14
SEE 4 / E-2

Revisions:	Drawn By:	App'd. By:	Date:

Designed By: B.C., J.R.S. 1/93
Drawn By: B.C. 1/93
Checked By: M.V. 1/93

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STATE OF VERMONT JAMES D. RYAN 6213 PROFESSIONAL ENGINEER

VERMONT AGENCY OF TRANSPORTATION

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ENGINEERS, SURVEYORS & PLANNERS
III WINNERS CIRCLE – ALBANY, NEW YORK – 12205
P.O. BOX 5269 518-453-4500

CHA Project No. 2972

EDWARD F. KNAPP STATE AIRPORT
TOWN OF BERLIN

FUELING SYSTEMS
A.I.R. 04-3087

ELECTRICAL DETAILS

SCALE: AS NOTED | DATE: APRIL 1993

Drawing No. E-2

SHEET 8 OF 13

ELECTRICAL EQUIPMENT

DESCRIPTION:

THIS WORK SHALL CONSIST OF FURNISHING AND INSTALLING THE ELECTRICAL EQUIPMENT, CONDUIT, WIRE ETC., IN ACCORDANCE WITH THE PLANS, SPECIFICATIONS AND/OR DIRECTIONS OF THE ENGINEER.

GENERAL:

1. DRAWINGS: THE DRAWINGS ARE DIAGRAMATIC AND INDICATE THE GENERAL ARRANGEMENT AND APPROXIMATE LOCATION OF EQUIPMENT AND DEVICES UNLESS INDICATED OTHERWISE. VERIFY EXACT LOCATIONS BASED ON ACTUAL FIELD CONDITIONS. REPORT ANY DISCREPANCIES DISCOVERED, PRIOR TO COMMENCING WORK.
2. COMPLETE SYSTEMS: FURNISH AND INSTALL ALL MATERIALS AS REQUIRED FOR COMPLETE SYSTEMS, INCLUDING ALL PARTS OBVIOUSLY OR REASONABLY INCIDENTAL TO A COMPLETE INSTALLATION, WHETHER SPECIFICALLY INDICATED OR NOT.
3. CODES: COMPLY WITH THE NATIONAL ELECTRIC CODE (NEC) AND ALL GOVERNING FEDERAL, STATE AND LOCAL LAWS, ORDINANCES, RULES AND REGULATIONS.
4. INSPECTIONS: DURING AND UPON COMPLETION OF THE WORK, ARRANGE FOR AND PAY ALL ASSOCIATED FEES FOR INSPECTION OF THE ELECTRICAL INSTALLATION BY AN APPROVED INSPECTION AGENCY. PROVIDE CERTIFICATE OF FINAL INSPECTION TO THE OWNER'S REPRESENTATIVE.
5. SUBMITTALS: SUBMIT FOR APPROVAL, PRODUCT DATA AND/OR SHOP DRAWINGS FOR ALL ELECTRICAL EQUIPMENT, DEVICES AND MATERIALS TO BE USED ON THE PROJECT.
6. SUBSTITUTIONS: MANUFACTURERS OTHER THAN THOSE LISTED WILL BE CONSIDERED ON AN APPROVED EQUAL BASIS. BURDEN OF PROOF OF BEING EQUAL WILL BE ON THE CONTRACTOR.
7. PRODUCTS: ALL ELECTRICAL MATERIALS TO BE NEW, STANDARD PRODUCTS OF THE RESPECTIVE MANUFACTURERS, AND UL LISTED.
8. INSTALLATION: ALL MATERIALS AND EQUIPMENT TO BE INSTALLED AS RECOMMENDED BY THE RESPECTIVE MANUFACTURERS, BY MECHANICS SKILLED IN THEIR PARTICULAR TRADE, IN A NEAT AND WORKMANLIKE MANNER, AND SO AS NOT TO VOID ANY WARRANTY OR UL LISTING.
9. COORDINATION: COORDINATE THE ELECTRICAL WORK WITH THAT FOR THE OTHER TRADES ON THE PROJECT.
10. ACCEPTANCE: ALL SYSTEMS TO BE COMPLETELY ASSEMBLED, TESTED, ADJUSTED AS REQUIRED, AND DEMONSTRATED TO BE FULLY OPERATIONAL, PRIOR TO OWNER ACCEPTANCE.
11. CLEANING: REMOVE FROM THE SITE ALL DEBRIS AND SURPLUS MATERIALS RESULTING FROM THE ELECTRICAL WORK. CLEAN ALL ELECTRICAL EQUIPMENT.

IDENTIFICATION:

1. NAMEPLATES: PROVIDE THREE-LAYER LAMINATED PLASTIC NAMEPLATE (WHITE CHARACTERS ON BLACK BACKGROUND) ENGRAVED WITH EQUIPMENT DESIGNATION FOR EACH SAFETY SWITCH, PANELBOARD, MOTOR STARTER, AND ALL OTHER ELECTRICAL CABINETS, ETC. FASTEN NAMEPLATES WITH STAINLESS STEEL SCREWS.
2. MARKING PEN LABELING: MARK EACH JUNCTION AND PULL BOX INDICATING SOURCE DESIGNATION AND CIRCUIT NUMBER(S) FOR THE ENCLOSED CONDUCTORS.
3. LABEL EACH CONDUCTOR AT ALL TERMINATIONS, SPLICES AND JUNCTION BOXES. EXAMPLE: PHASE A JET FUEL PUMP
4. UPDATE EXISTING PANEL CIRCUIT DIRECTORY.

MATERIAL

- CONDUIT:
  1. UNDERGROUND- SCHEDULE 80 RIGID PLASTIC, EXCEPT STUB UP ELBOW AND LAST 2'-0" TO CONNECTION TO BE GALVANIZED RIGID STEEL.
  2. ABOVE GROUND- IN AREA OF FUELING CABINET-GALVANIZED RIGID STEEL WITH SEALS. INSIDE BLDG.-EMT WITH COMPRESSION FITTINGS. EXITING BLDG. ABOVE GRADE-GALVANIZED RIGID STEEL.
- CONDUCTORS:
  1. -SINGLE COPPER CONDUCTORS WITH 600 VOLT, TYPE "THW" OR THHN/THWN INSULATION.
  2. -CONNECTORS TO BE UL LISTED TO SUIT THE APPLICATION.
- STROBE LIGHT AND HORN ASSEMBLY:
  1. STROBE LIGHT; 75 FLASHES PER MINUTE WITH GLASS FRESNAL LENS HOUSED IN RED LEXAN DOME, ON ALUMINUM HOUSING. HORN; SOUND LEVEL 100dB AT 10'-0", UL LISTED, 120 VAC. TO BE MOUNTED IN STROBE LIGHT HOUSING. FEDERAL SIGNAL MODEL 400 ST (STROBE LIGHT) AND MODEL 350 (HORN) WITH 400 HMK AC ACCESSORY MOUNTING KIT.
- CONTACTORS:
  1. MECHANICALLY HELD, MOTOR RATED, UL LISTED, 60 AMP, 120 VAC COIL, NEMA 1, POLES AS SHOWN; SQUARE D TYPE S OR EQUAL.
- PANEL P2A:
  1. TWO-ROW CIRCUIT BREAKER STYLE.
  2. RATINGS, MAINS, MOUNTING AND COMPLEMENT OF BRANCH CIRCUIT BREAKERS PER DRAWING.
  3. ENCLOSURE: NEMA-1 (UNLESS INDICATED OTHERWISE) MINIMUM 20" WIDE GALVANIZED STEEL ROUGH-IN BOX WITH INTURNED FLANGES ON ALL SIDES OF FRONT.
  4. FRONT COVER: DEAD FRONT SHEET STEEL WITH GRAY ENAMEL FINISH AND PARACENTRIC LOCK WITH SPRING CATCH. ALL LOCKS TO BE KEYED ALIKE. PROVIDE TWO KEYS PER LOCK.
  5. PANELBOARD ASSEMBLIES: REMOVABLE, WITH PROVISIONS FOR FRONT TRIM ADJUSTMENT.
  6. BUSSING: COPPER ONLY, ARRANGED FOR ALTERNATING PHASE CONNECTION OF BRANCH DEVICES, AND ALL POLE SPACES EQUIPPED TO RECEIVE BRANCH CIRCUIT MEMBERS. INCLUDE NEUTRAL BUS AND GROUND BUS IN EACH PANELBOARD, WITH REQUIRED LUGS OR SCREW TERMINALS. GROUND BUS TO BE BONDED TO ENCLOSURE.
  7. CIRCUIT BREAKERS: BOLT-IN TYPE, MOLDED CASE, WITH THERMAL AND MAGNETIC TRIPS. PROVIDE 3P 100A CIRCUIT BREAKER IN PANEL 2. MATCH EXISTING PANEL.
  8. IDENTIFICATION: PERMANENTLY IDENTIFY EACH PANELBOARD WITH DRAWING DESIGNATION, USING ENGRAVED LAMINATED PLASTIC NAMEPLATE.
  9. CIRCUIT DIRECTORY: PLASTIC COVERED, WITH HOLDER ON INSIDE OF COVER DOOR. ALL CIRCUIT DIRECTORIES TO BE ACCURATELY COMPLETED (TYPEWRITTEN) IDENTIFYING EACH CONNECTED LOAD OR "SPARE".

PULL BOXES

1. MINIMUM SIZE SHOWN ON DIAGRAMS.
2. TOP OF BOX TO BE FLUSH WITH GROUND.
3. COVER TO BE BOLTED TO BOX AND LOGO TO READ "ELECTRIC".
4. BOXES CAN BE CONCRETE, PRE CAST METAL OR REINFORCED FIBERGLASS.
5. BOX SHALL HAVE PRE CUT CABLE ENTRANCES.

SITE LIGHTING

FIXTURE: HEAVY DUTY FLOODLIGHT, 208V, 250W METAL HALIDE LAMP, OPTICS - WIDE HORIZONTAL NARROW VERTICAL BEAM, STANDARD YOKE MOUNT AND VISOR SHIELD; CATALOG #F2A-250HP-20-N-B--P.

POLE: SQUARE STRAIGHT ALUMINUM POLE, 4" SQUARE, WITH .125" WALL THICKNESS, COLOR-BRONZE; POLE TOP MOUNTING TO INCLUDE SLIP FIT ADAPTOR AND TENON, ADJUSTABLE FOR HORIZONTAL AIMING; CATALOG #105-4012-14 BY WIDELITE OR EQUAL.

TESTING

ALL CONDUCTORS TO BE MEGGER TESTED BEFORE AND AFTER INSTALLATION. MEGGER TEST TO BE CONDUCTED IN PRESENCE OF THE OWNER'S REPRESENTATIVE AND SUBMIT TYPED TEST RESULTS ON THE FORM APPROVED BY THE OWNER'S REPRESENTATIVE. IF THE MEGGER READINGS FOR THE INSTALLED CABLE ARE LESS THAN 100 MEG OHMS, THE INSTALLATION IS NOT ACCEPTACLE.

GROUNDS: ALL GROUNDS SHALL BE TESTED AND THE READINGS RECORDED.

METHOD OF MEASUREMENT

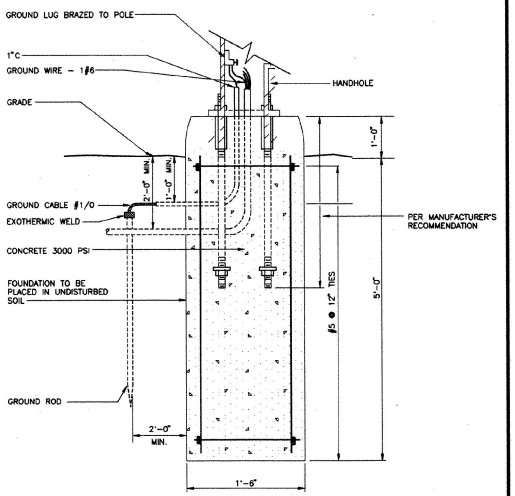
PAYMENT FOR THIS WORK WILL BE MADE ON A LUMP SUM BASIS.

BASIS OF PAYMENT

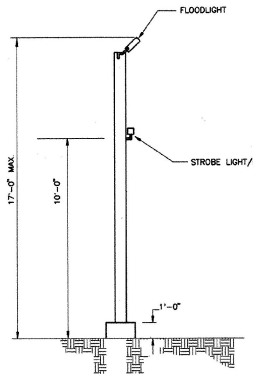
THE UNIT PRICE BID FOR THIS WORK SHALL INCLUDE THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND SAFETY REQUIREMENTS AS DETERMINED BY THE U.S. DEPARTMENT OF LABOR'S OCCUPATIONAL SAFETY AND HEALTH STANDARDS AND INCIDENTALS AS NECESSARY TO COMPLETE THE WORK OF THIS ITEM AND PERFORM ALL TESTS TO THE SATISFACTION OF THE ENGINEER.

PANEL: P-2A — VOLTS, PHASE, WIRE: 120/208, 3ø 4W — 20 POLES
LOCATION: ELECTRIC ROOM — MAINS: 100 MLO
MOUNTING: SURFACE — SHORT CIRCUIT RATING: 10,000 AIC

CKT	LOAD DESCRIPTION	CONN LOAD KVA	WIRE SIZE	CB AMPS/ POLE	PHASE	CB AMPS/ POLE	WIRE SIZE	CONN LOAD KVA	LOAD DESCRIPTION	CKT
1	AVGAS PUMP	4.0	#6	20/3	A	60/3	#2	11.6	JET A PUMP	2
3					B					4
5					C					6
7	AVGAS HOSE REEL	1.2	#4	20/1	A	20/1	#4	1.2	JET A HOSE REEL	8
9	ALARM HORN AND LIGHT		#10	20/1	B	20/1	#6	0.8	JET A SUMP HEATER	10
11	CONTACTOR A,B,C,D		#12	20/1	C	20/1	#10		TANK MONITORING PANEL	12
13	SITE LIGHTS	0.6	#10	20/2	A					14
15					B					16
17					C					18
19					A					20



6 M/E-1 LIGHT POLE BASE DETAIL N.T.S.



7 M/E-1 LIGHT POLE #1 N.T.S.

LIGHT POLE #2 THE SAME EXCEPT NO STROBE LIGHT/HORN.

LIGHT	STATION	OFFSET
1	10+57	45' RT
2	11+39	42' RT

Revisions:	Drawn By:	App'd. By:	Date:

Designed By: B.C., J.R.S. 1/93
Drawn By: B.C. 1/93
Checked By: M.V. 1/93

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JAMES R. SLAVIN NO. 6213 PROFESSIONAL ENGINEER

VERMONT AGENCY OF TRANSPORTATION

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CHA Project No. 2972

EDWARD F. KNAPP STATE AIRPORT
TOWN OF BERLIN

FUELING SYSTEMS
A.I.R. 04-3087

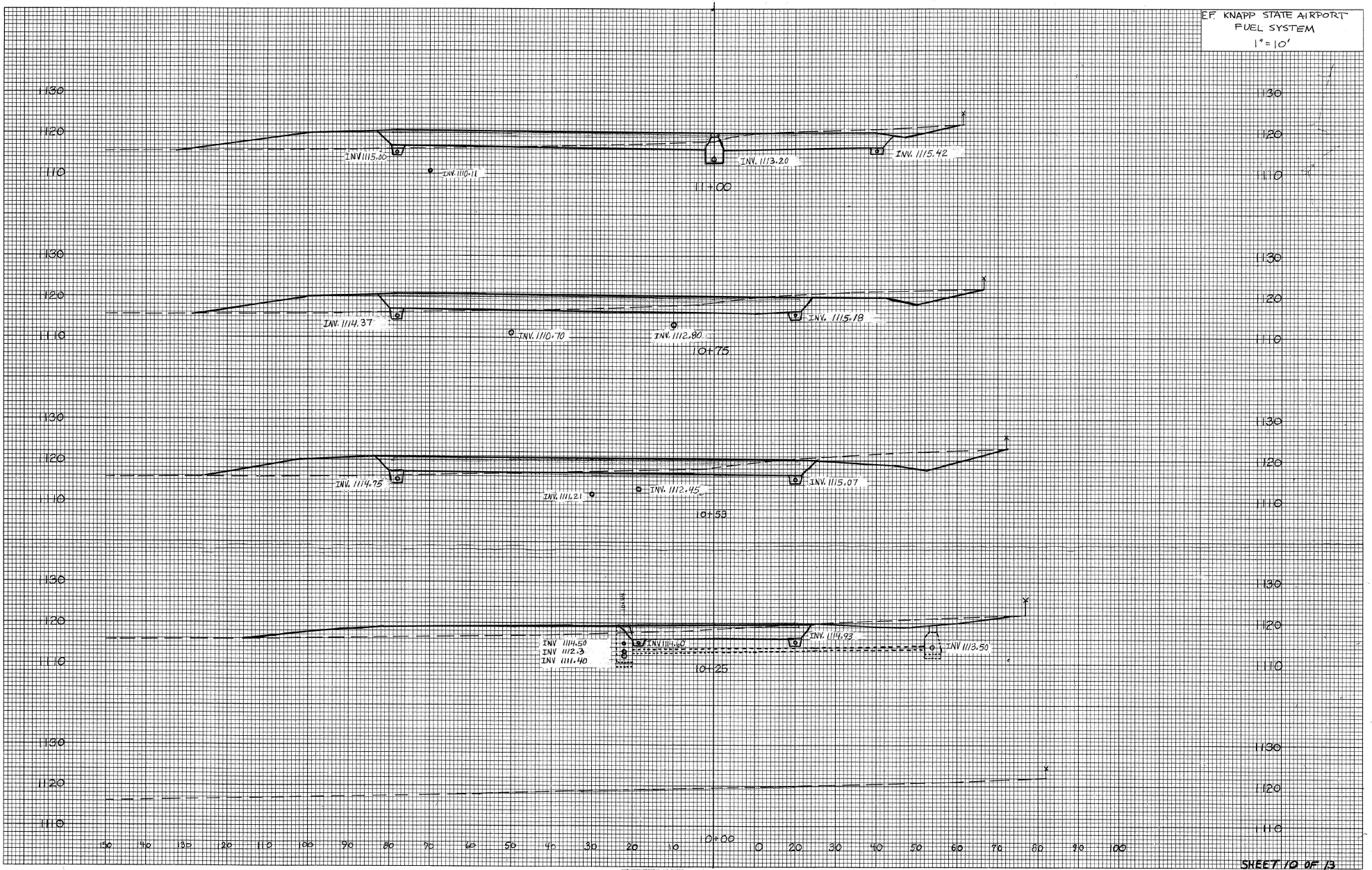
ELECTRICAL DETAILS

SCALE: AS NOTED | DATE: APRIL 1993

Drawing No. E-3

SHEET 9 OF 13

E.F. KNAPP STATE AIRPORT
FUEL SYSTEM
1" = 10'



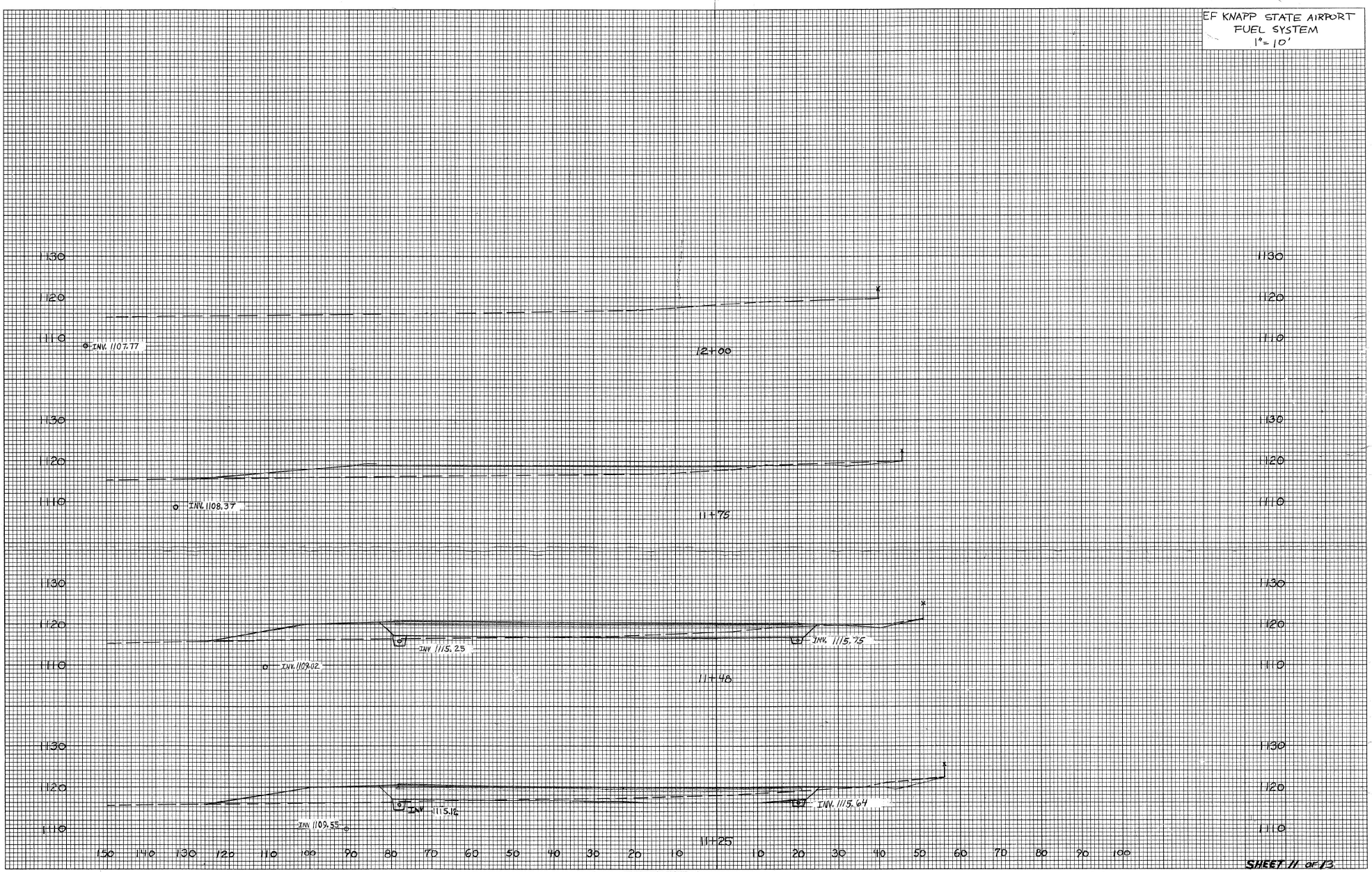
FINAL SURVEY
NOTE BOOK
NO.
STAKED
PLOTTED
TEMPLATE
AREAS CHECKED
BY
DATE

ORIGINAL SURVEY
NOTE BOOK
NO.
STAKED
PLOTTED
TEMPLATE
AREAS CHECKED
BY
DATE

HIGHWAY FEDERAL AID SHEET
PLATE 3-FULL CROSS SECTION-FULL LINE
TELEDYNE
PRINTED IN U.S.A.

SHEET 10 OF 13

EF KNAPP STATE AIRPORT
FUEL SYSTEM
1"=10'



FINAL SURVEY
SURVEYED
PLOTTED
TEMPLATE
NOTE BOOK
NO.
AREAS
AREAS CHECKED
BY
DATE

ORIGINAL SURVEY
SURVEYED
PLOTTED
TEMPLATE
NOTE BOOK
NO.
AREAS
AREAS CHECKED
BY
DATE

HIGHWAY FEDERAL AID SHEET
PLATE 3-FULL CROSS SECTION-FULL LINE
W. TILDEN CO.
PRINTED IN U.S.A.

SHEET 11 of 13

QUANTITY SHEET

STATE OF VERMONT
AGENCY OF TRANSPORTATION

APPROXIMATE SUMMARY OF QUANTITIES

	QUANTITIES GRAND TOTAL	UNIT	ITEMS	ITEM NO.	ROUNDING
	50	CY	SOLID ROCK EXCAVATION	203.16	-
*	1020	CY	COMMON EXCAVATION	203.15	-
	110	CY	EARTH BORROW	203.30	-
	1400	CY	SAND BORROW	203.31	-
	500	CY	TRENCH EXCAVATION OF EARTH	204.20	-
	25	CY	TRENCH EXCAVATION OF ROCK	204.21	-
	50	CY	EXCAV. CL. I CONTAMINATED SOILS	215.20	EST.
	50	CY	EXCAV. CL. II CONTAMINATED SOILS	215.21	EST.
	220	CY	SUBBASE DENSE GRADED CRUSHED STONE	301.35	-
	20	CWT	EMULSIFIED ASPHALT	404.65	-
	380	TON	BITUMINOUS CONCRETE PAVEMENT	406.25	-
	60	CY	CONCRETE, CLASS A	501.22	-
	250	LB	REINFORCING STEEL	507.15	-
	5	GAL	JOINT SEALER, HOT POURED (MOD.)	524.10	-
	1	EA	REMOVAL OF STRUCTURE (MODIFIED)	529.15	
	357	LF	12'' CORRUGATED POLYETHYLENE PIPE	601.0905	-
	3	EA	PRECAST REINFORCED CONC. CATCH BASIN W/CAST IRON GRATE	604.20	-
	1	EA	PRECAST REINFORCED CONCRETE MANHOLE WITH CAST IRON COVER	604.21	-
	1	EA	PRECAST REINFORCED CONC. MANHOLE W/CAST IRON COVER (MODIFIED)	604.21	
	1	EA	CAST IRON GRATE W/FRAME TYPE D	604.51	-
	500	LF	6'' UNDERDRAIN	605.10	EST.
	4	EA	UNDERDRAIN FLUSHING BASIN	605.95	EST.
	60	MGL	DUST CONTROL W/WATER	609.10	EST.
	8	EA	GUIDE POSTS (MODIFIED)	621.85	
	140	TON	CRUSHED STONE BEDDING (MODIFIED)	629.54	
	1	LS	MOBILIZATION	635.10	EST.
	300	LF	4'' YELLOW LINE (MODIFIED)	646.21	EST.
	300	LF	TEMP. 4" YELLOW LINE (MOD.)	646.61	EST.
	1670	SY	GEOTEXTILE FOR ROADBED SUBGRADE SEPARATOR	649.11	EST.
*	200	SY	GEOTEXTILE FABRIC FOR SILT FENCE	649.51	EST.
	265	SY	GEOTEXTILE FOR UNDERDRAIN TRENCH LINING	649.41	EST.
	55	LB	SEED	651.15	-
	320	LB	FERTILIZER	651.18	-
	2	TON	AGRICULTURAL LIMESTONE	651.20	-
	2	TON	HAY MULCH	651.25	-
	35	EA	HAY BALES FOR EROSION CONTROL	651.26	-
	220	CY	TOPSOIL	651.35	-
	2200	LF	ELECTRICAL CONDUIT	678.21	EST.
	3	EA	JUNCTION BOX	678.26	-
	2	EA	LIGHT POLE BASE	679.21	-
	2	EA	LIGHT POLE	679.45	-
	2	EA	LUMINAIRE	679.50	-
	1	LS	AIRPORT FUEL SYSTEM	830.15	-
*	1	LS	TESTING EQUIPMENT- CONCRETE	631.16	
*	1	LS	TESTING EQUIPMENT- BITUMINOUS	631.17	
*	250	SF	BLACK PAVEMENT MARKING MASKING TAPE	646.86	EST.

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS
*		ITEMS OUT OF ORDER

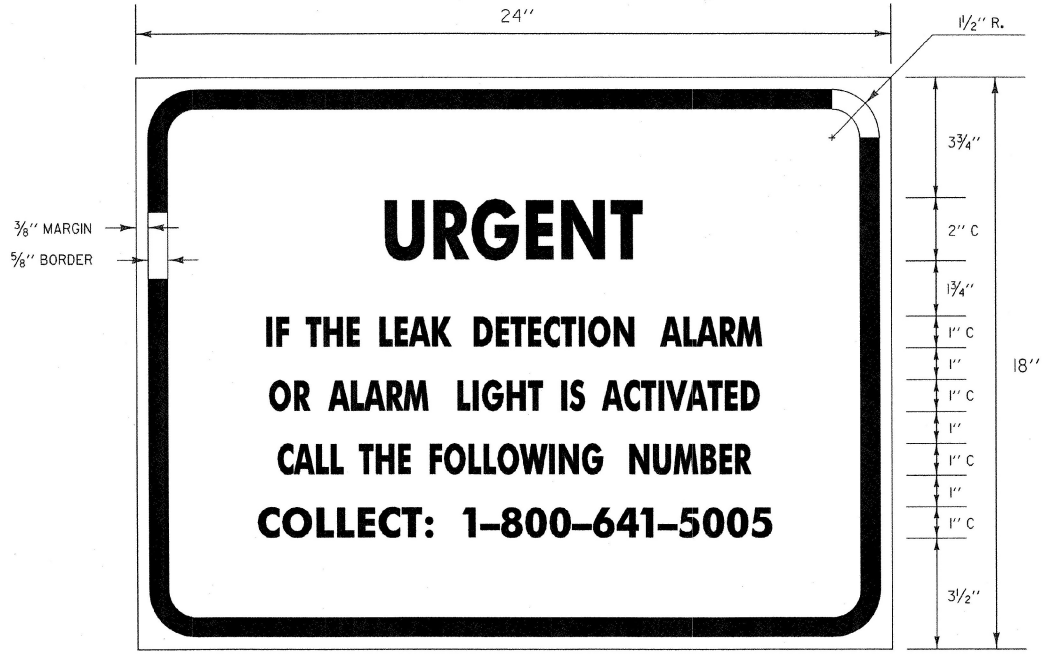
DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS

STATIONS FROM	STATIONS TO	PAVEMENT WIDTHS			EQUATIONS +	EQUATIONS -	FEET	MILES	REMARKS
TOTALS									

28-SEP-1994
/const/rapt/ce038qs.txt

PROJECT NAME E.F. KNAPP STATE AIRPORT
PROJECT NUMBER AIR 04-3087



COLORS:

TEXT & BORDER - RED

BACKGROUND - REFLECTORIZED WHITE

MATERIALS:

SEE STANDARD E-140

FUEL LEAK SIGN DETAIL

PREPARED BY DAS DATE 6/93

CHECKED BY _____ DATE _____

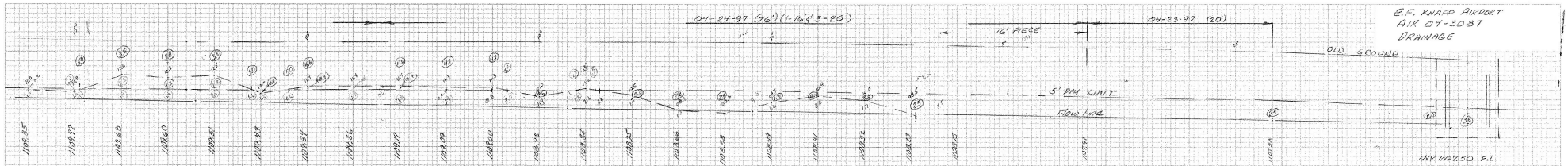
DESIGN SUPERVISOR _____ DATE _____

PROJ.

TRAFFIC SHEET NO. 13 OF 13

SHEET 13 OF 13 SHEETS

E.F. KNAPP AIRPORT
AIR 04-3087
DRAINAGE



10+42.5 LEFT – 12+13 LEFT

PIPE — SAND BOROUGH BACKFILL IN AREA OF LEDGE REMOVAL (3' UNDER PIPE, DUE TO IRREGULAR, PIPE HAUNCHING 2', ⅛ PIPE 6" = 11" + 0.92')
[[(1.092)(3.33)(145.6)] – [(1')(.7854)(1.5)(145.6)]](1/27) = 12.4 cy
R.Com. 12/30/97

TRENCH EXCAVATION EARTH (0-5')
(FROM INLET) CATCH BASIN @ 10+42.5 (3.7)(4.33)(6.83)(1/27)
12" CPEP [(3.85)(5.08)+(4.45)(6)+(5.0)(19.5)+(4.25)(5)+(5.42)(10)+(11.25)(7)+(5.50)(7)+(4.83)(2)+(4.42)(10)+(4.42)(5)+(4.17)(5)+(4.83)(1.5)+(5.0)(7.0)+(4.17)(2)+(3.0)(40.6)](3.33)(1/27)
CATCH BASIN @ 12+13 (5.0)(6.83)(6.83)(1/27)

TRENCH EXCAVATION EARTH (OVER 5')
12" CPEP [(0.5)(10)+(0.25)(2)+(0.6)(5)+(1.0)(3)+(1.33)(7.5)+(1.05)(2.5)+(0.8)(8)+(0.35)(5)+(0.29)(5)+(0.2)(10.5)+(0.3)(4)+(0.5)(7.5)+(0.29)(4)+(0.2)(5)+(1.85)(5)+(0.35)(5)+(0.6)(5)+(1.65)(5.5)+(2.45)(38.5)+(2.2)(17.0)](3.33)(1.5)(1/27)
CATCH BASIN @ 12+13 (3.5)(6.83)(6.83)(1.5)(1/27)

TRENCH EXCAVATION ROCK (0-5')
CATCH BASIN @ 10+42.5 (1.5)(6.83)(6.83)(1/27)
12" CPEP [(1.13)(5.08)+(0.2)(2)+(0.75)(4.2)+(1.33)(28)+(0.75)(4)+(0.2)(2)+(0.41)(10)+(0.2)(5)+(0.29)(5)+(0.13)(12)+(0.4)(2)](3.33)(1/27)

2.23 cy
4.41
6.64

TRENCH EXCAVATION ROCK (OVER 5')
CATCH BASIN (2.5)(6.83)(6.83)(1.5)(1/27)
12" CPEP [(3.14)(5.08)+(1.0)(5)+(0.2)(2)+(0.75)(4.2)+(0.8)(5)+(0.26)(3)+(0.29)(2.2)+(0.85)(2)+(0.85)(3)+(1.03)(2)+(0.2)(2.5)+(1.41)(9.2)+(1.14)(5)+(1.29)(4)+(1.2)(4)+(1.26)(7)+(1.85)(16.2)+(1.2)(36)+(1.13)(4)+(2.2)(2.5)+(1.96)(35)+(0.85)(5)+(2.1)(5)+(1.0)(2)+(0.6)(5)+(1.4)(1.5)+(1.85)(5)+(0.85)(55)](2.33)(1.5)(1/27)

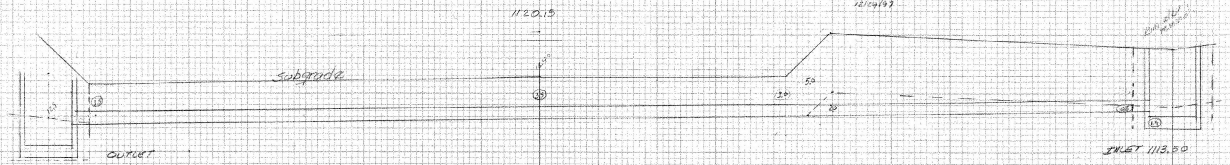
6.64
37.15
10.30
R.Com. 12/29/97

10+48.5 LEFT – 12+13 LEFT
12" x 204.5 CPEP
w/ RCCB w/ CAST IRON GRATE
& INLET & OUTLET



GRADES SHOWN ARE FOR BOTTOM OF 3" UNDERCUT

640 cy
120.16
864
37.10
9.33
1511.63 cy
R.Com. 12/29/97



TRENCH EXCAVATION EARTH
(0-5')
PIPE 12"CPEP [(3.5)(38.6)+(2.33)(7.0)+(4.0)(2.0)+(5.0)(10.6)](3.33)(1/27) = 43.09 cy
CATCH BASIN (3.0)(6.33)(6.83)(1/27) 8.64
(OVER 5')
PIPE 12"CPEP [(0.6)(2.0)+(1.25)(22.6)](3.33)(1.5)(1/27) 6.29
CATCH BASIN (1.9)(6.83)(6.83)(1.5)(1/27) 3.78
62.94 cy
R.Com. 12/29/97

10+42.5 Rt-Lt
12" 70° CPEP w/ RCCB w/ Grate & Inlet



10+43 Lt – 11+0 Lt
12" x 70' CPEP w/ RCCA w/
Cast Iron Grate (mod.) & Inlet

TRENCH EXCAVATION EARTH
(12+57) [(27)(38.33)+(23)(38.75)](3.33)(1/27) = 26.73
Catch Basin (13')(6')(1/27) 11.85
(OVER 5') (8')(3.8)(1.5)(1/27) 13.51
52.09 cy
R.Com. 12/30/97

TRENCH EXCAVATION ROCK
(OVER 5')
CATCH BASIN (8')(0.5)(1.5)(1/27) = 1.78 cy
R.Com. 12/30/97

* Agreed to pay Alaska Rock Trench due to extra thickness of pipe walls.

Keuffel & Esser Company PLATE 3. CROSS SECTION 48 7058 Made in U.S.A.

1120.31

1120.02

1119.63

1119.35

1120.31

1120.16

1120.02

1119.75

1119.67

CONCRETE APRON

PLATE 3. CROSS SECTION 46 7068 Made in U.S.A.

Keuffel & Esser Company

PLATE 3. CROSS SECTION 46 7068 Made in U.S.A.