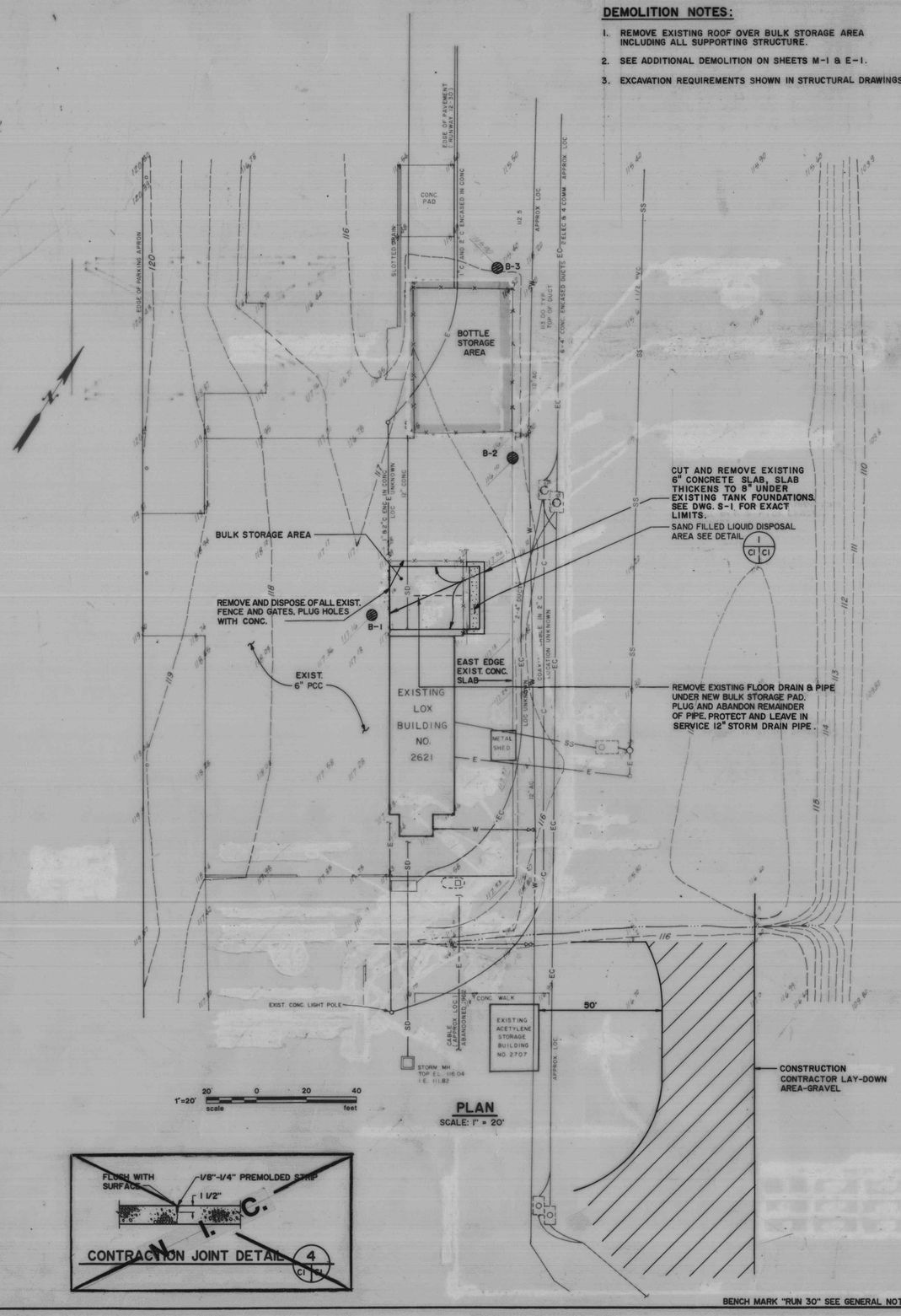
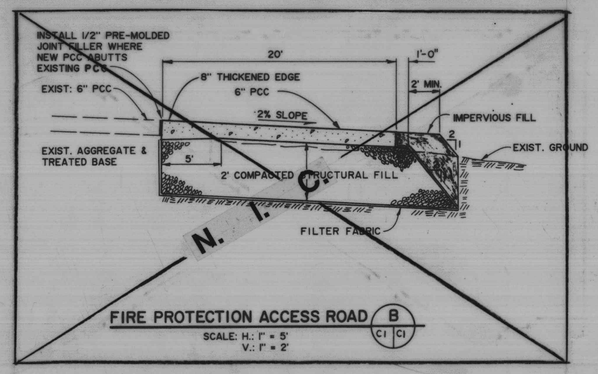
DEMOLITION NOTES:

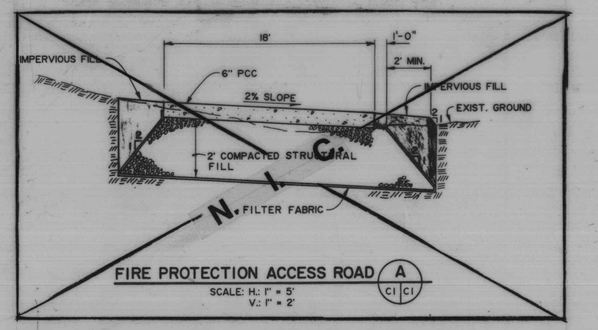
1. REMOVE EXISTING ROOF OVER BULK STORAGE AREA INCLUDING ALL SUPPORTING STRUCTURE.
2. SEE ADDITIONAL DEMOLITION ON SHEETS M-1 & E-1.
3. EXCAVATION REQUIREMENTS SHOWN IN STRUCTURAL DRAWINGS.



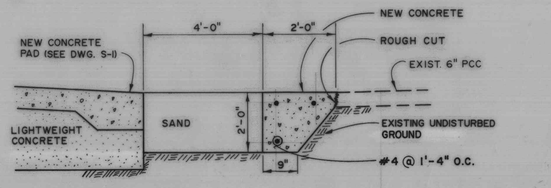
PLAN
SCALE: 1" = 20'



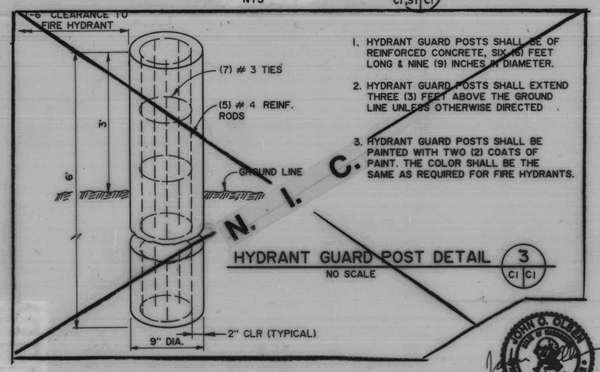
FIRE PROTECTION ACCESS ROAD (B) CI CI
SCALE: H.: 1" = 5' V.: 1" = 2'



FIRE PROTECTION ACCESS ROAD (A) CI CI
SCALE: H.: 1" = 5' V.: 1" = 2'



LIQUID DISPOSAL AREA DETAIL (1) CI SI CI
NTS



1. HYDRANT GUARD POSTS SHALL BE OF REINFORCED CONCRETE, SIX (6) FEET LONG & NINE (9) INCHES IN DIAMETER.
2. HYDRANT GUARD POSTS SHALL EXTEND THREE (3) FEET ABOVE THE GROUND LINE UNLESS OTHERWISE DIRECTED
3. HYDRANT GUARD POSTS SHALL BE PAINTED WITH TWO (2) COATS OF PAINT. THE COLOR SHALL BE THE SAME AS REQUIRED FOR FIRE HYDRANTS.

HYDRANT GUARD POST DETAIL (3) CI CI
NO SCALE

CONTRACTION JOINT DETAIL (4) CI CI

BENCH MARK "RUN 30" SEE GENERAL NOTES

REVISIONS				
SYM	DESCRIPTION	PREP'D BY	DATE	APPROVED
	GENERAL MODIFICATIONS I	ROG	5-20-92	

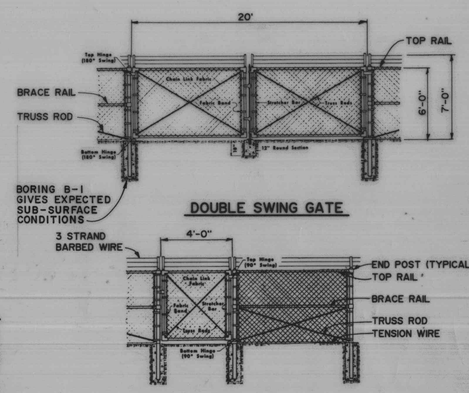
GENERAL NOTES

1. RELOCATE AND PROTECT UTILITIES ENCOUNTERED DURING CONSTRUCTION, AS REQUIRED.
2. BENCH MARK "RUN 30" USGS BRASS DISK IN CONCRETE REFER TO PW DWG. NO. 81-9, ELEV. 118.66 FT. (NAVY DATUM). DATUM STATION: N 492,921.11, E 1,557,430.70

LEGEND

—SS—	SANITARY SEWER
—SD—	STORM DRAIN
—W—	WATER MAIN
—E—	ELECTRICAL
—C—	COMMUNICATIONS
	SOIL BORING SEE SHEET GT-1
	BENCH MARK

CONCRETE FOOTING FOR POLES				
TYPE OF POST	FABRIC HEIGHT	HOLE DIAMETER	HOLE DEPTH	POST EMBEDMENT
LINE	6'-0"	12"	38"	36"
TERMINAL	6'-0"	12"	38"	36"



DOUBLE SWING GATE

SINGLE SWING GATE

CHAIN LINK FENCE DETAIL (2) SI CI
NO SCALE

IF SHEET IS LESS THAN 28" X 40" IT IS A REDUCED PRINT — SCALE REDUCED ACCORDINGLY

C-1

JOHN O. OLSEN
STATE OF WASHINGTON
PROFESSIONAL CIVIL ENGINEER

2600 32nd Ave. W., Suite 205
P.O. Box 4428
Lynnwood, WA 98036-4428
206/775-3434

DSGN. JAK	DR. BDM	CHK. JOO	
SUPV. JAK		CH. ENGR. JOO	
SUBMITTED BY (VICE PRES.)		DATE 7/14/92	
E.I.C. DC 5/27/92		FIRE PROT.	
SEC. HD.		DIV. HD 6/17/92	
SATISFACTORY TO		DATE 5/27/92	
APPROVED		DATE	
CONCURRENCE PRO		DATE 6/17/92	

DEPARTMENT OF THE NAVY
NAVAL AIR STATION, WHIDBEY ISLAND, WASHINGTON

SPECIAL PROJECT E(C) (R) 9-87
REPLACE TANKS AT LOX FACILITY
DEMOLITION PLAN AND DETAILS

SIZE	CODE IDENT. NO.	NAVFAC. DRAWING NO.
F	80091	6355201
SCALE AS SHOWN		CONST. CONTR. NO. N62474-92-C-3049
		SPEC. 12-92-3049 SHEET 2 OF 8

NASW 11100/1 (Rev 7-88)

U.S. GOVERNMENT PRINTING OFFICE:1985-550-255

FILE: 2621 ORIGINAL COPY

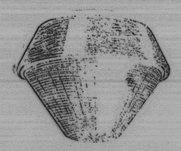
Replace Tanks at LOX Facility
N62474-92-C-3049
2 of 8

6355201

EAM FILE COPY Bernal Co.

6355201

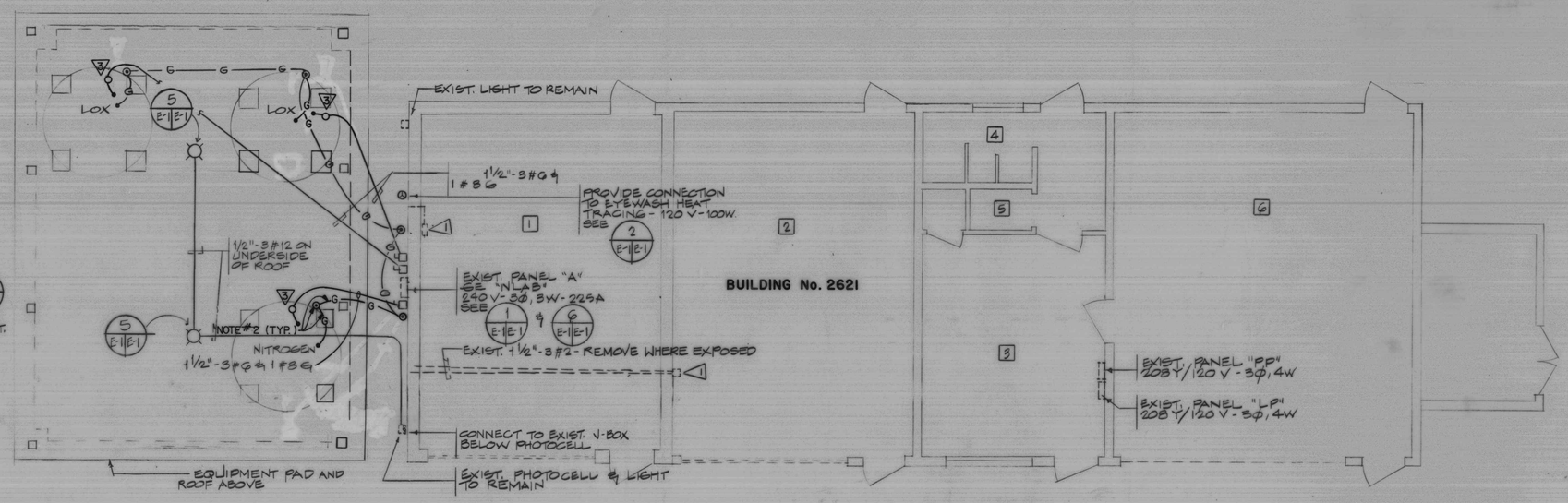
REVISIONS				
SYM	DESCRIPTION	PREP'D BY	DATE	APPROVED
	GENERAL MODIFICATIONS I	RBS	5-20-92	



LIGHT FIXTURE DETAIL (5 / E-1 | E-1)

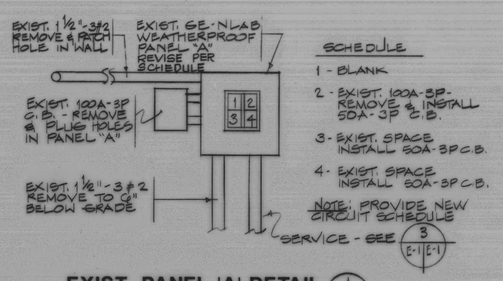
NO SCALE

DESCRIPTION: 70 WATT HIGH PRESSURE SODIUM LAMP, HIGH POWER FACTOR BALLAST, 120V. ALUMINUM HOUSING, PRISMATIC GLASS LENS, SHOCK RESISTANT, LISTED FOR DAMP LOCATION.



FLOOR PLAN

1/4"=1'-0"



SCHEDULE

1 - BLANK

2 - EXIST. 100A-3P - REMOVE & INSTALL 50A-3P C.B.

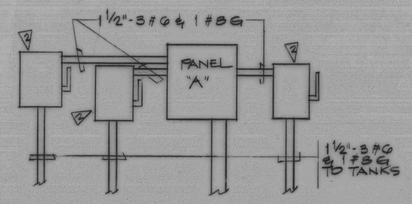
3 - EXIST. SPACE INSTALL 50A-3P C.B.

4 - EXIST. SPACE INSTALL 50A-3P C.B.

NOTE: PROVIDE NEW CIRCUIT SCHEDULE

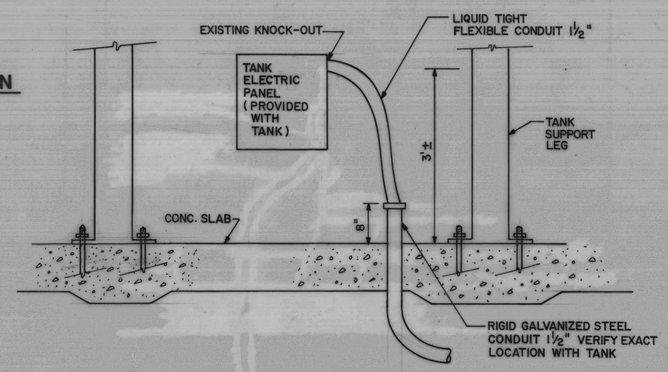
EXIST. PANEL 'A' DETAIL (1 / E-1 | E-1)

NO SCALE



REVISED ELEVATION (6 / E-1 | E-1)

NO SCALE



TANK CONNECTION DETAIL (4 / E-1 | E-1)

NO SCALE

FLAG NOTES

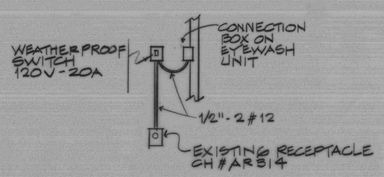
1. EXISTING JUNCTION BOX - REMOVE.
2. NEW EMERG DISCONNECT SWITCH 240V-60A-3Ø WP. LOCKABLE IN "OFF" POSITION.
3. CONNECTION TO TANK PER 4 / E-1 | E-1. VERIFY EXACT STUB-UP LOCATION.

LEGEND

- —G— GROUND CABLE (NOTE #2)
- — — — EXIST CONDUIT OR DEVICE AS INDICATED
- ——— NEW CONDUIT & WIRE
- ⊙ GROUND ROD (NOTE #2)

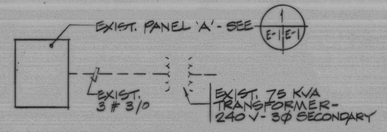
ABBREVIATIONS

G	GROUND CONDUCTOR
V	VOLTS
EXIST.	EXISTING
A	AMPS
CB	CIRCUIT BREAKER
P	POLE
Ø	PHASE
W	WIRE
WP	WEATHERPROOF



EYEWASH CONNECTION DETAIL (2 / E-1 | E-1)

NO SCALE



RISER DIAGRAM (3 / E-1 | E-1)

GENERAL NOTES

1. DEMOLITION: REMOVE EXIST CONDUIT & WIRE UNDER EXIST SLAB TO BE REMOVED. REMOVE CONNECTIONS TO EXIST TANKS. REMOVE EXIST CANOPY (TO BE REMOVED) LIGHTS AND ASSOCIATED CONDUIT & WIRE BACK TO J-BOX BELOW PHOTOCELL. ALSO SEE DETAIL NO. 1 AND FLOOR PLAN.
2. ALL EQUIPMENT TO BE STATIC GROUNDED. GROUND RODS TO BE INSTALLED WITH TOP 3" ABOVE SLAB OR GRADE. GROUND CABLE #1/0 BARE COPPER BELOW SLAB OR GRADE. CONNECT TO EXISTING GROUND SYSTEM. BOND TO EACH TANK.
3. ELECTRICAL CONDUIT FOR TANKS SHALL BE BURIED UNDER THE CONCRETE SLABS. CUT AND PATCH EXISTING CONCRETE FOR NEW CONDUIT RUNS WHERE REQUIRED.

GRAPHIC SCALE: 1/4" = 1'-0" 0 1 2 4 10

JOHN O. OLSEN — STATE OF WASHINGTON — 21766 — REGISTERED PROFESSIONAL CIVIL ENGINEER — 3/20/92

ROBERT B. SPARLING — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER

IF SHEET IS LESS THAN 28" X 40" IT IS A REDUCED PRINT — SCALE REDUCED ACCORDINGLY

E-1

REID MIDDLETON, 19033 33rd Ave. W., Suite 201, Lynnwood, Washington 98036, 206/775-3434		DEPARTMENT OF THE NAVY NAVAL AIR STATION, WHIDBEY ISLAND, WASHINGTON	
DSGN. RBS	DR. PAD	CHK. RBS	SPECIAL PROJECT E(C) (R) 9-87 REPLACE TANKS AT LOX FACILITY ELECTRICAL PLANS & DETAILS
SUPV. RBS		CH. ENGR. RBS	
SUBMITTED BY (FIRM MEMBER TITLE)		DATE 1/26/95	
E.I.C. RK 5/23/92	FIRE PROT.		
SEC. HO	DIV. HO 6/17/92		
SATISFACTORY TO		DATE	SIZE F; CODE IDENT. NO. 80091; NAVFAC. DRAWING NO. 6355208
TITLE		6/22/92	CONST. CONTR. NO. N62474-92-C-3049
CONCURRENCE		DATE 6/18/92	SCALE AS SHOWN; SPEC. 12-92-3049; SHEET 8 OF 8
APPROVED		DATE	
EFD FOR COMMANDER, NAVFAC			

NASM 11100/1 (Rev 7-88) FILE: 2621 U.S. GOVERNMENT PRINTING OFFICE: 1985-595-059

ORIGINAL - - COPY

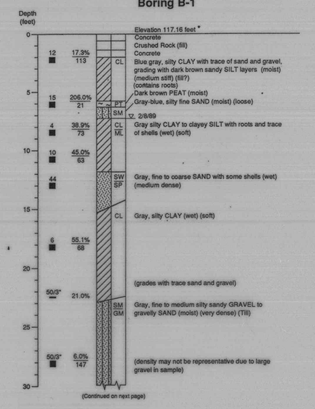
Replace Tanks at LOX Facility N62474-92-C-3049 8 of 8

6355208

CAD FILE CORN. RIVER, CA

REVISIONS				
SYM	DESCRIPTION	PREP'D BY	DATE	APPROVED

Boring B-1



KEY

55.1% — Moisture Content in percent
68 — Dry Density in PCF

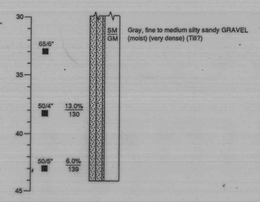
4 — Blows required to drive 2.42-inch I.D. split barrel sampler 1 foot with a hammer weight of 140 pounds and a stroke of 30 inches
■ — Indicates depth at which relatively undisturbed sample was extracted
⊠ — Indicates depth of disturbed sample
□ — Indicates sample attempt with no recovery

* Elevations in feet, MSL datum. Elevations were provided by Reid, Middleton & Associates, Inc.

LANDAU ASSOCIATES, INC. | Log of Boring B-1 (Page 1 of 2)

Figure A-1

Boring B-1 (cont.)

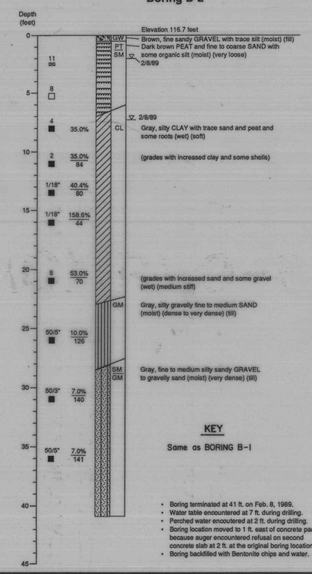


- Boring terminated at 44 ft. on Feb. 8, 1989.
- Water table encountered at 7 ft. during drilling.
- Boring backfilled with Bentonite chips and water; 1.5 ft. concrete at surface.

LANDAU ASSOCIATES, INC. | Log of Boring B-1 (Page 2 of 2)

Figure A-1

Boring B-2



KEY

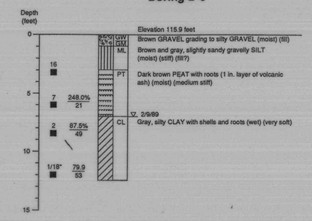
Same as BORING B-1

- Boring terminated at 41 ft. on Feb. 8, 1989.
- Water table encountered at 7 ft. during drilling.
- Perched water encountered at 2 ft. during drilling.
- Boring location moved to 1 ft. east of concrete pad because auger encountered refusal on second concrete slab at 2 ft. at the original boring location.
- Boring backfilled with Bentonite chips and water.

LANDAU ASSOCIATES, INC. | Log of Boring B-2

Figure A-2

Boring B-3



- Boring terminated at 12.5 ft. on Feb. 9, 1989.
- Water table encountered at 7 ft. during drilling.
- Boring backfilled with Bentonite chips and water.

KEY

Same as BORING B-1

LANDAU ASSOCIATES, INC. | Log of Boring B-3

Figure A-3

Unified Soil Classification System

MAJOR DIVISIONS			GRAPH SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS More than 50% of material is larger than #200 sieve size	GRAVEL AND GRAVELLY SOILS More than 50% of coarse fraction retained on #4 sieve	CLEAN GRAVELS (Little or no fines)		GW	Well-graded gravels, gravel-sand mixtures, little or no fines
				GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
		GRAVELS WITH FINES (Appreciable amount of fines)		GM	Silty gravels, gravel-sand-silt mixtures
				GC	Clayey gravels, gravel-sand-clay mixtures
	SAND AND SANDY SOILS More than 50% of coarse fraction passing #4 sieve	CLEAN SAND (Little or no fines)		SW	Well-graded sands, gravelly sands, little or no fines
				SP	Poorly-graded sands, gravelly sands, little or no fines
		SANDS WITH FINES (Appreciable amount of fines)		SM	Silty sands, sand-silt mixtures
				SC	Clayey sands, sand-clay mixtures
FINE GRAINED SOILS More than 50% of material is smaller than #200 sieve size	SILTS AND CLAYS Liquid Limit less than 50			ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
				CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
				OL	Organic silt and organic silty clays of low plasticity
	SILTS AND CLAYS Liquid Limit greater than 50			MH	Inorganic silts, micaceous or diatomaceous fine sand or silty soils
				CH	Inorganic clays fo high plasticity, fat clays
				OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS				PT	Peat, humus, swamp soils with high organic contents

Note: Dual symbols are used to indicate borderline soil classifications

LANDAU ASSOCIATES, INC. | Unified Soil Classification System

A-8

Figure A-4

IF SHEET IS LESS THAN 28" X 40" IT IS A REDUCED PRINT — SCALE REDUCED ACCORDINGLY

GT-1

JOHN O. OLSEN, STATE OF WASHINGTON, 21604, PROFESSIONAL CIVIL ENGINEER, 7/20/92

REID MIDDLETON 19031 33rd Ave. W., Suite 301, Lynnwood, Washington 98036 206/775-3434			DEPARTMENT OF THE NAVY NAVAL AIR STATION, WHIDBEY ISLAND, WASHINGTON
DSGN. LAI	DR. BDM	CHK. JOO	SPECIAL PROJECT E(C) (R) 9-87 REPLACE TANKS AT LOX FACILITY SOILS BORING LOGS
SUPV. JAK		CH. ENGR. JOO	
SUBMITTED BY (VICE PRES.)		DATE 7/20/92	
E.I.C. DIV. 5/27/92	FIRE PROT.		
SEC. HD	DIV. HD 6/17/92		
SATISFACTORY TO		DATE	SIZE F / CODE IDENT. NO. 80091 / NAVFAC. DRAWING NO. 6355202
APPROVED		DATE	CONST. CONTR. NO. N62474-92-C-3049
EFD FOR COMMANDER NAVFAC			SCALE AS SHOWN / SPEC. 12-92-3049 / SHEET 3 OF 8

CONCURRENCE PRO — DATE 6/19/92

NASW 11100/1 (Rev 7-88) FILE: 2621 U.S. GOVERNMENT PRINTING OFFICE:1985-506-200

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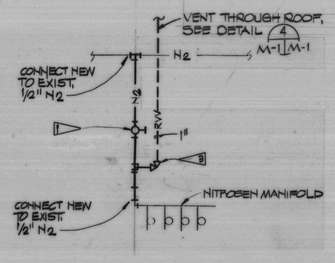
Replace Tanks at LOX Facility N62474-92-C-3049 3 of 8

6355202

6355202

LOX FACILITY IMPROVEMENTS

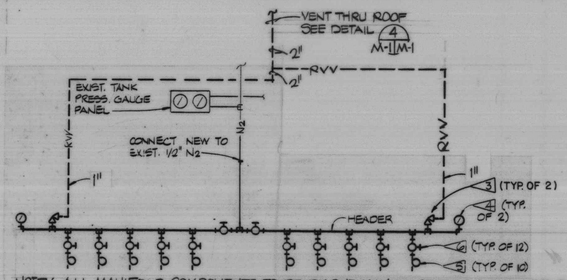
REVISIONS				
SYM	DESCRIPTION	PREP'D BY	DATE	APPROVED
	GENERAL MODIFICATIONS I	SDR	5-20-92	



FLAG NOTES

1. STAINLESS STEEL GLOBE VALVE (SIMILAR TO PIPING SYSTEM MATERIAL), PRESSURE RATED AT 6,000 PSIG.
2.
3. STAINLESS STEEL RELIEF VALVE (SIMILAR TO PIPING SYSTEM MATERIAL), RELIEF PRESSURE SET AT 4,000 PSIG.
4.

NITROGEN CONNECTION DETAIL 7 M-2 M-1

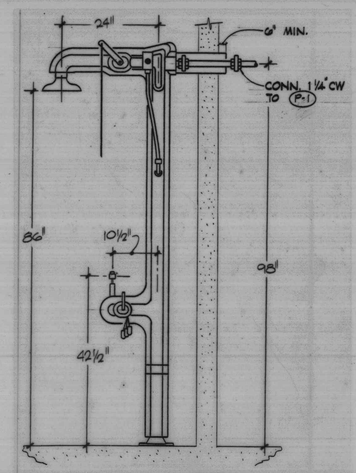


NOTE: ALL MANIFOLD COMPONENTS TO BE BY ONE MANUFACTURER & SUITABLE FOR NITROGEN SERVICE AT INDICATED PRESSURES. MANIFOLD SHALL BE FACTORY ASSEMBLED BY MANUFACTURER. FIELD ASSEMBLY IS NOT ACCEPTABLE.

FLAG NOTES

1.
2.
3. STAINLESS STEEL RELIEF VALVE (SIMILAR TO PIPING SYSTEM MATERIAL), RELIEF PRESSURE SET AT 4,000 PSIG.
4. STAINLESS STEEL PRESSURE GAUGE (SIMILAR TO PIPING SYSTEM MATERIAL), PRESSURE RANGE = 0 - 6,000 PSIG, CALIBRATED AT FACTORY.
5. CYLINDER CONNECTING COIL WITH HANDLE.
6. STAINLESS STEEL GLOBE VALVE (SIMILAR TO PIPING SYSTEM MATERIAL), PRESSURE RATED AT 6,000 PSIG.

NITROGEN MANIFOLD DETAIL 5 M-1, M-2 M-1

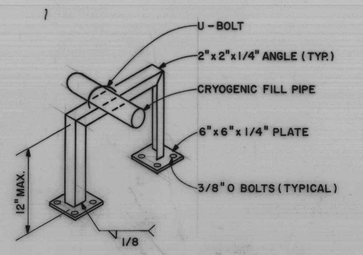


COMBINATION EMERGENCY SHOWER/ EYEWASH (P-1) PIPING DETAIL 1 M-2 M-1

NO SCALE

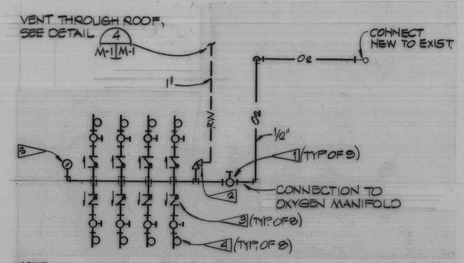
LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
		ITEM TO BE REMOVED
		PIPE DOWN
		PIPE UP or UP & DOWN
P-1		PLUMBING FIXTURE SYMBOL
M-1		MECHANICAL EQUIPMENT SYMBOL
	GV	GATE VALVE
	GLV	GLOBE VALVE, STRAIGHT PATTERN
		QUICK DISCONNECT COUPLING WITH SHUT-OFF VALVE
	CKV	CHECK VALVE
	RV	RELIEF VALVE
		PRESSURE SERVICE REGULATOR
		VALVE IN PIPE RISE OR DROP
	PG	PRESSURE GAUGE
		CAP
		ECCENTRIC REDUCER/INCREASER
	CW	COLD WATER
O2	O_2	GASEOUS OXYGEN
N2	N_2	GASEOUS NITROGEN
LO2	LO_2	LIQUID OXYGEN
LN2	LN_2	LIQUID NITROGEN
RVV	RVV	RELIEF VALVE VENT
	B.O.P.	BOTTOM OF PIPE
VV	VV	VAPOR VENT



8 TRANSFER LINE PIPE SUPPORT

M-2 M-1 NTS



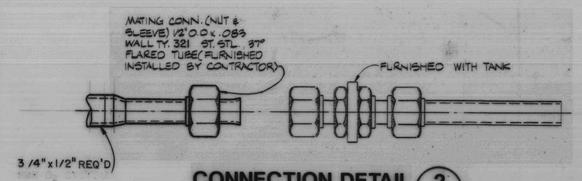
NOTE: ALL MANIFOLD COMPONENTS TO BE BY ONE MANUFACTURER AND SUITABLE FOR OXYGEN SERVICE AT INDICATED PRESSURES. MANIFOLD SHALL BE FACTORY ASSEMBLED BY MANUFACTURER. FIELD ASSEMBLY IS NOT ACCEPTABLE.

FLAG NOTES

1. STAINLESS STEEL GLOBE VALVE (SIMILAR TO PIPING SYSTEM MATERIAL), PRESSURE RATED AT 6,000 PSIG.
2. STAINLESS STEEL RELIEF VALVE (SIMILAR TO PIPING SYSTEM MATERIAL), RELIEF PRESSURE SET AT 2,800 PSIG.
3. STAINLESS STEEL GLOBE TYPE CHECK VALVE (SIMILAR TO PIPING SYSTEM MATERIAL), PRESSURE RATED AT 6,000 PSIG.
4. CYLINDER CONNECTING COIL WITH HANDLE.
5. STAINLESS STEEL PRESSURE GAUGE (SIMILAR TO PIPING SYSTEM MATERIAL), PRESSURE RANGE = 0 - 6,000 PSIG, CALIBRATED AT FACTORY.

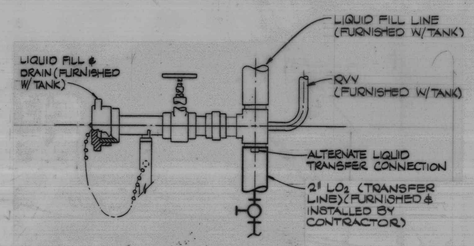
NOTE: PROVIDE PIPE SUPPORT (APPROXIMATELY 4 FOOT TALL) FOR O_2 MANIFOLD SIMULAR TO DETAIL 8, SHEET M-1.

OXYGEN MANIFOLD DETAIL 6 M-2 M-1



CONNECTION DETAIL 2 M-2 M-1

NO SCALE

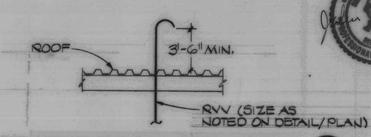


PIPING DETAIL 3 M-2 M-1

NO SCALE

MECHANICAL EQUIPMENT SCHEDULE

MARK	ITEM	DESCRIPTION
P-1	COMBINATION EMERGENCY SHOWER/ EYEWASH	~~SEE SPECIFICATION SECTION 15400, 2.3.~~
V-1 V-2	AMBIENT AIR VAPORIZER FOR OXYGEN SYSTEM	7,600 SCFH OXYGEN AT 5,000 PSIG, 8 HOURS OPERATION. WIDE SPACE NATURAL DRAFT AMBIENT AIR VAPORIZER. SURFACE AREA = 1,200 SQ. FT., END CONNECTIONS = 3/4 INCH FPT, MAXIMUM ALLOWABLE WORKING PRESSURE = 6,000 PSIG, FLOOR SPACE = 49" x 73", HEIGHT = 158". CRYOQUIP, INC., MODEL VAC 824 S60 XL10, HEX INDUSTRIES, INC., MODEL HAE 824 S60 XL10, CRYO-CHEM, INC., MODEL 36A-H OR EQUAL.
V-3	AMBIENT AIR VAPORIZER FOR NITROGEN SYSTEM	6,200 SCFH NITROGEN AT 5,200 PSIG, 8 HOURS OPERATION. WIDE SPACE NATURAL DRAFT AMBIENT AIR VAPORIZER. SURFACE AREA = 800 SQ. FT., END CONNECTIONS = 3/4 INCH FPT, MAXIMUM ALLOWABLE WORKING PRESSURE = 6,000 PSIG, FLOOR SPACE = 49" x 49", HEIGHT = 158". CRYOQUIP, INC., MODEL VAC 816 S60 XL10, HEX INDUSTRIES, INC., MODEL HAE 816 S60 XL10, CRYO-CHEM, INC., MODEL 24A-H, OR EQUAL.



RELIEF VALVE VENT DISCHARGE DETAIL 4 M-1, M-2 M-1

NO SCALE

JOHN O. OLSEN STATE OF WASHINGTON REGISTERED PROFESSIONAL CIVIL ENGINEER

JOHN D. ROWLAND STATE OF WASHINGTON REGISTERED PROFESSIONAL ENGINEER

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M-1

REID MIDDLETON 19033 33rd Ave. W., Suite 270, Lynnwood, Washington 98036 206/775-3434

DESIGN. SLB | DR. MCM | CHK. JDR
SUPV. RF | CH. ENGR. JDR
SUBMITTED BY (VICE PRES.) 7/20/92
FIRM MEMBER (TITLE) | DATE
E.I.C. DN. 5/27/93 | FIRE PROT.
SEC. HD. | DIV. HD 6/8/92
SATISFACTORY TO | DATE 6/27/92
TITLE
APPROVED | DATE
EFD FOR COMMANDER NAVFAC

CONCURRENCE | DATE 6/19/92
FIRO

DEPARTMENT OF THE NAVY
NAVAL AIR STATION, WHIDBEY ISLAND, WASHINGTON

SPECIAL PROJECT C(R) 9-87
REPLACE TANKS AT LOX FACILITY
LEGEND, SCHEDULES, SECTIONS & DETAILS

SIZE	CODE IDENT. NO.	NAVFAC. DRAWING NO.
F	80091	6355206
SCALE AS NOTED		CONST. CONTR. NO. N62474-92-C-3049
		SPEC. 12-92-3049 SHEET 6 OF 8

NASW 11100/1 (Rev 7-88) FILE: 2621 U.S. GOVERNMENT PRINTING OFFICE-1985-595-296

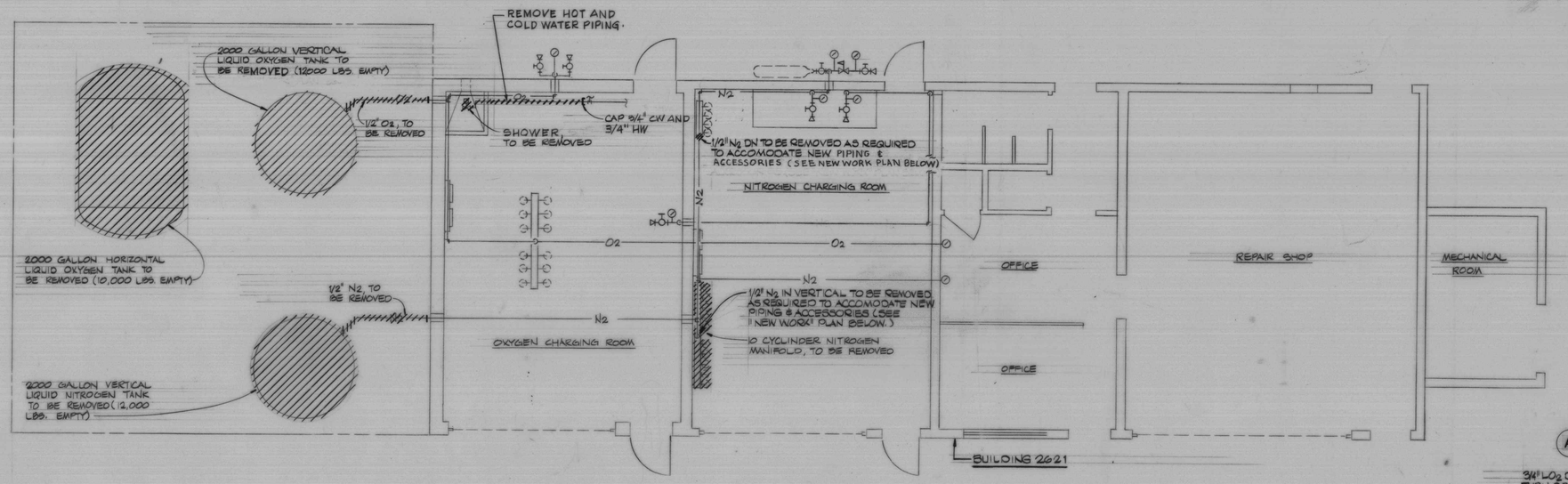
Replace Tanks at LOX Facility
N62474-92-C-3049
6 of 8

6355206

CASS FILE COPY, IRVINE, CA. EFR-36

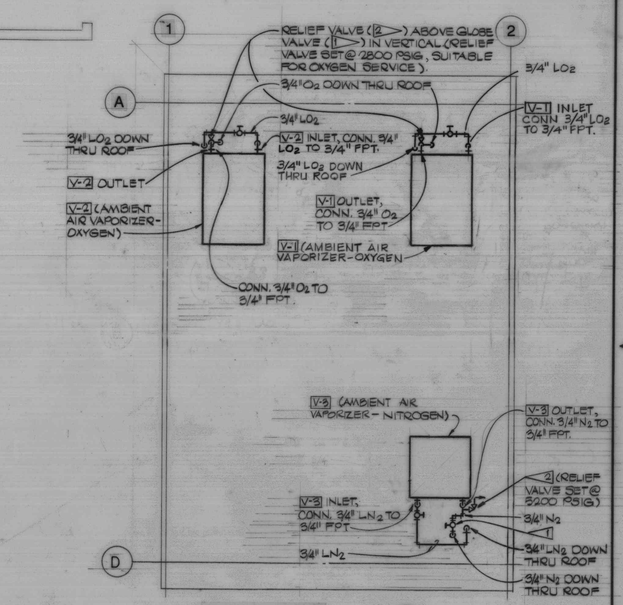
NAS ORIGINALS

REVISIONS				
SYM	DESCRIPTION	PREP'D BY	DATE	APPROVED
	GENERAL MODIFICATIONS I	JDR	5-20-92	



PARTIAL FLOOR PLAN-DEMOLITION

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



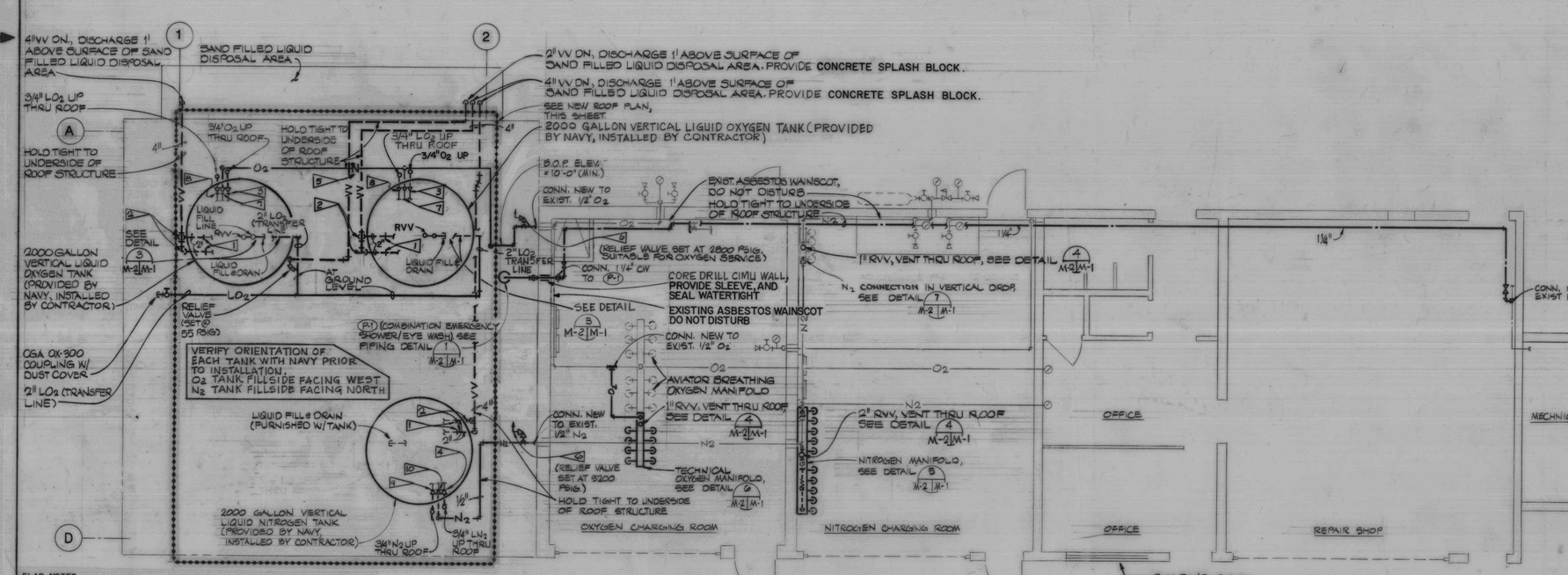
ROOF PLAN

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

FLAG NOTES

1. STAINLESS STEEL GLOBE VALVE (SIMILAR TO PIPING SYSTEM MATERIAL), PRESSURE RATED AT 6,000 PSIG.
2. STAINLESS STEEL RELIEF VALVE (SIMILAR TO PIPING SYSTEM MATERIAL).

NOTE: ABOVE IS BASED ON CRYOQUIP, INC. MODELS, AS SHOWN IN EQUIPMENT SCHEDULE. MODIFY AS REQUIRED TO ACCOMODATE OTHER MANUFACTURER/MODEL NUMBER, IF REQUIRED.



PARTIAL FLOOR PLAN-NEW WORK

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

FLAG NOTES

1. CONNECT 2" VAPOR VENT TO 2" VAPOR VENT HEADERS (FURNISHED WITH TANK).
2. VAPOR VENT (COPPER TUBING, TYPE "K" HARD, 2-1/8" O.D. REF.).
3. CONNECT 3/4" O_2 TO 1/2" AMBIENT VAPOR INLET (FURNISHED WITH TANK); SEE DETAIL 2/M-2/M-1
4. CONNECT 3/4 LN_2 TO 1/2" AMBIENT VAPOR DISCHARGE (FURNISHED WITH TANK); SEE DETAIL 2/M-2/M-1
5. STAINLESS STEEL GLOBE TYPE CHECK VALVE (SIMILAR TO PIPING SYSTEM MATERIAL), PRESSURE RATED AT 6,000 PSIG, SUITABLE FOR OXYGEN SERVICE.
6. STAINLESS STEEL RELIEF VALVE (SIMILAR TO PIPING SYSTEM MATERIAL).
7. CONNECT 3/4" O_2 TO 1/2" HIGH PRESSURE GAS DISCHARGE (FURNISHED WITH TANK); SEE DETAIL 2/M-2/M-1
8. CONNECT 3/4" LO_2 TO 1/2" AMBIENT VAPOR DISCHARGE (FURNISHED WITH TANK); SEE DETAIL 2/M-2/M-1
9. CONNECT 3/4" N_2 TO 1/2" AMBIENT VAPOR INLET SEE DETAIL 2/M-2/M-1
10. CONNECT 1/2" N_2 TO 1/2" HIGH PRESSURE GAS DISCHARGE (FURNISHED WITH TANK); SEE DETAIL 2/M-2/M-1
11. SEE DETAIL 3/M-2/M-1

GENERAL NOTES:

1. PROVIDE PIPE SUPPORTS IN ACCORDANCE WITH DETAIL 8/M-2/M-1 FOR ALL PIPES RUN AT GROUND LEVEL.

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

IF SHEET IS LESS THAN 28" X 40" IT IS A REDUCED PRINT — SCALE REDUCED ACCORDINGLY

M-2

REID MIDDLETON, 19031 33rd Ave. W., Suite 301, Lynnwood, Washington 98036, 206/775-3434			DEPARTMENT OF THE NAVY NAVAL AIR STATION, WHIDBEY ISLAND, WASHINGTON
DSGN. SLB	DR. MCM	CHK. JDR	SPECIAL PROJECT E(C)(R)9-87 REPLACE TANKS AT LOX FACILITY FLOOR PLANS
SUPV. RF		CH. ENGR. JDR	
SUBMITTED BY		DATE	
E.I.C.		FIRE PROT.	
SEC. HD.		DIV. HD.	
SATISFACTORY TO		DATE	SIZE: F; CODE IDENT. NO.: 80091; NAVFAC. DRAWING NO.: 6355207
APPROVED		DATE	CONST. CONTR. NO.: N62474-92-C-3049
			SCALE: AS NOTED; SPEC. 12-92-3049; SHEET 7 OF 8

CONCURRENCE PRO — DATE 6/12/92

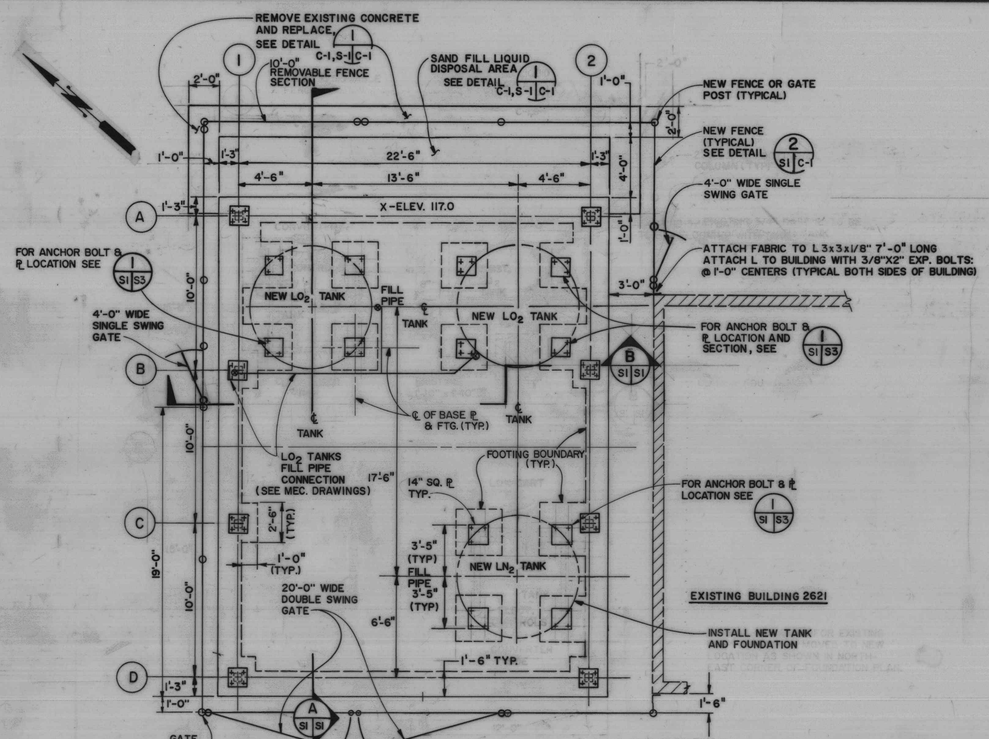
NASW 11100/1 (Rev 7-88) FILE: 2621 U.S. GOVERNMENT PRINTING OFFICE:1985-595-258

Replace Tanks at LOX Facility
N62474-92-C-3049
7 of 8

6355207

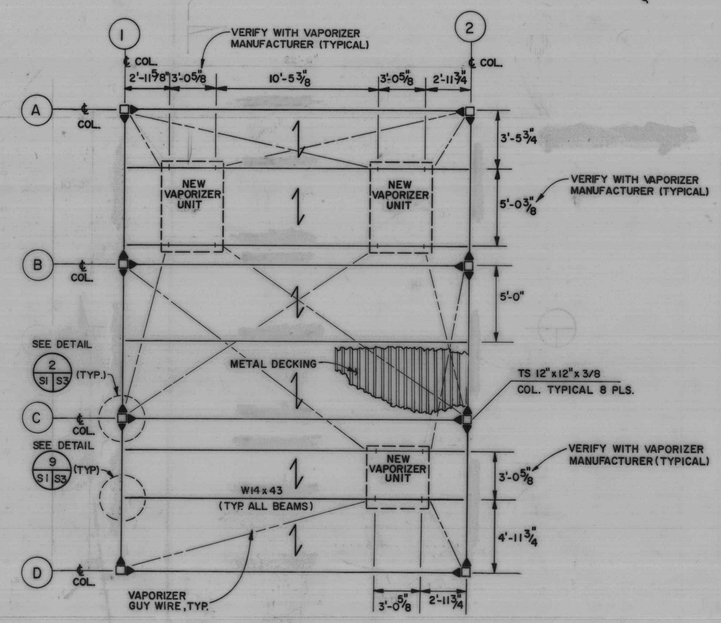
NAS ORIGINAL

REVISIONS				
SYM	DESCRIPTION	PREP'D BY	DATE	APPROVED
	GENERAL MODIFICATIONS I	ROG	5-20-92	



FOUNDATION PLAN

SCALE: 1/4" = 1'



NEW ROOF PLAN

SCALE: 1/4" = 1'

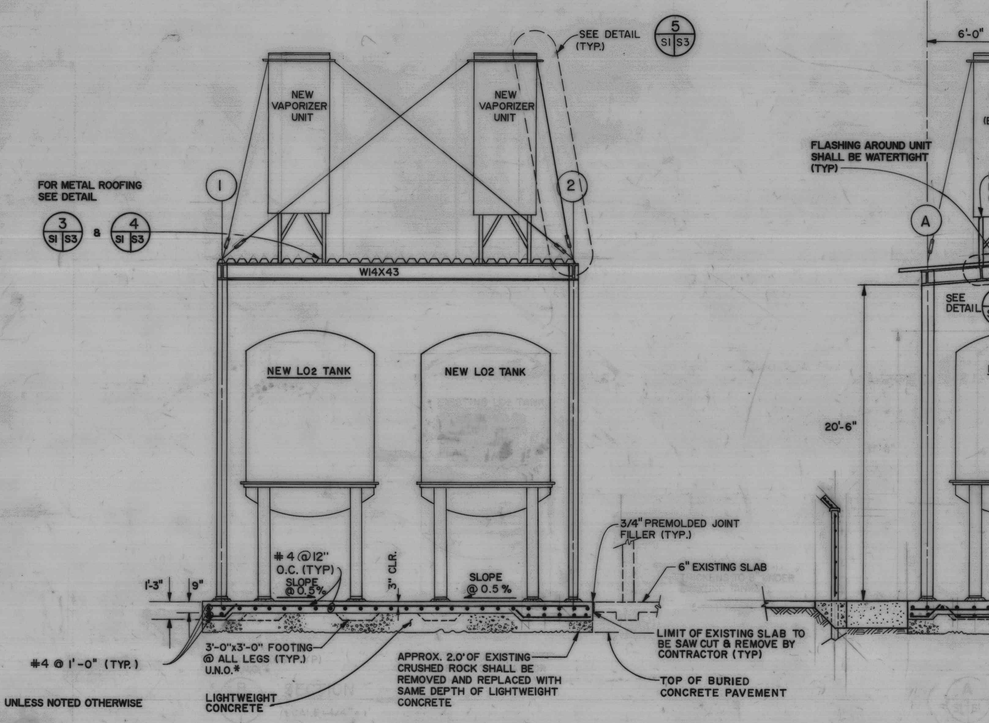
* NOTES: INDICATES MOMENT CONNECTION OF GIRDER TO COLUMN.

Design Criteria:

Roof:	20 psf
Maximum Soil Bearing:	2000 psf
Seismic:	Zone III
Wind:	Exposure C

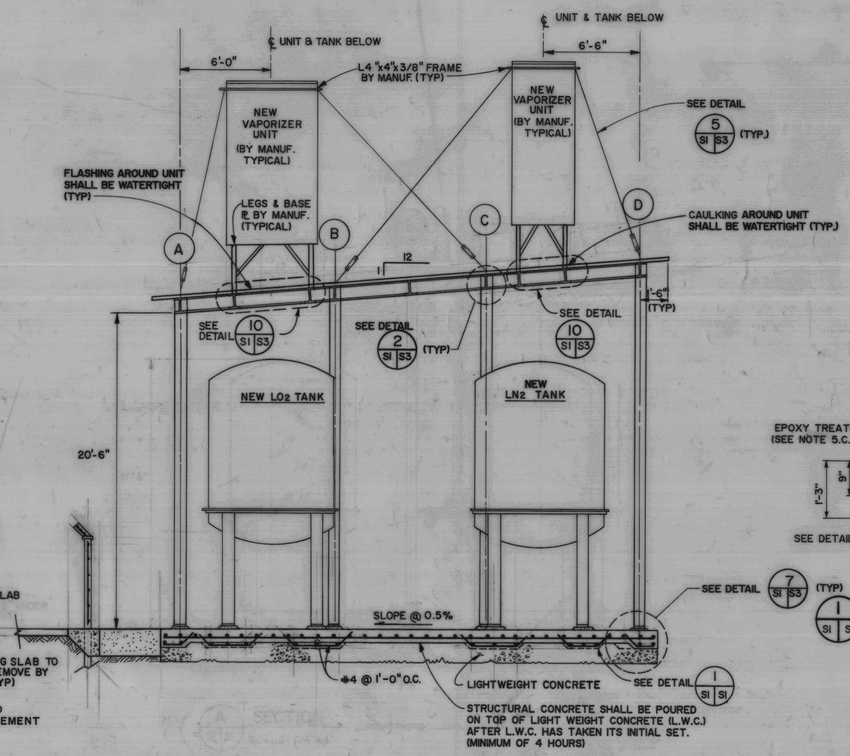
GENERAL NOTES

1. Code: 1985 Uniform Building Code, American Concrete Institute 301 84 (87)
2. Applicable Specification: Work shall conform to Washington State Department of Transportation 1988 Standard Specifications for Road, Bridge, and Municipal Construction, and Navy Specifications.
3. Construction Loads: Contractor shall provide temporary support and bracing, as required, for safety and structural integrity throughout construction.
4. Soil Bearing: Footing shall be placed on firm, undisturbed soil unless shown otherwise. Soil shall be compacted to 95% of maximum density.
5. Concrete:
   A. Concrete Properties:
      Type III Cement shall be used
      28-day minimum strength f_c = 5000 psi
      Minimum 6 sacks cement per cubic yard
      Maximum water/cement ratio by weight 0.40
      Maximum aggregate size 7/8 inch
      Entrained air content 6% + 1/2%
   B. Maximum slump 2" to 4"
   C. A clear epoxy or an equal coating approved by Contracting Officer shall be used to protect the finished concrete surface from contamination.
   D. Reinforcement:
      Steel reinforcement shall be deformed bars made from new billet stock conforming to ASTM A615, Grade 60.
   E. Contractor shall inform the owner at least 48 hours prior to pouring.
   F. Contractor shall strip forms after concrete strength has reached .75 f_c or 3750 psi.
6. Light Weight Concrete:
   A. Aggregate for light weight concrete shall conform to ASTM C330.
   B. Maximum air-dry unit weight shall be 85 pcf in accordance with ASTM C567.
   C. Concrete construction shall conform to ASTM A301.
   D. 28 day minimum strength f'_c = 2000 psi.
7. Structural and Miscellaneous Steel:
   A. All structural steel, the fabrication of, and the erection of, shall conform to the latest specifications of American Institute of Steel Construction (A.I.S.C.).
   B. All structural steel shall be ASTM A36 unless noted otherwise.
   C. All anchor bolts shall be A-307 unless noted otherwise.
   D. All bolts shall be ASTM A-325 unless noted otherwise.
   E. All base plates shall be ASTM A36 unless noted otherwise.
   F. All welding shall be performed in strict accordance with AWS "Structural Welding Code" by locally certified welders. Use E70XX electrode.
   G. All steel shall be given a shop coat of rust resisting primer in accordance with manufacturer's recommendations.
8. Metal Roof Decking:
   18 gauge minimum
   Minimum S = .395 inch³
   Minimum I = .330 inch⁴
   Weight = 2.90 lbs/ft²
   Metal roof shall be galvanized and prime painted.
9. All bolts and plates shall be hot-dip galvanized to 2 oz/s.f. in accordance with ASTM A-153 and A-123.
10. Nonshrink grout shall be a ready-to-use metallic aggregate product requiring only the addition of water at the job site, and shall have the following attributes:
    A. Be capable of producing a flowable grouting material having no drying shrinkage or-settlement at any age.
    B. The compressive strength of grout (50 mm or 2" cubes) shall be not less than 350 kg per sq. cm (5,000 psi) at age seven days, and 527 kg per sq. cm (7,500 psi) at age 28 days.
11. Roof caulking shall conform to ASTM C-920-79, Type S Grade NS, Class 25 and shall be one-component silicone.
12. Roof design and new vaporizer unit attachments are based upon the use of equipment shown on Drawing M-2.
13. Contractor shall call NAS Fire Department "FIRE WATCH" at 257-2532 twenty-four hours in advance of any cutting or welding.
14. New tanks will be furnished by the Government.
15. Wire rope shall be 7 x 19 galvanized aircraft cable with a minimum nominal breaking strength of 20,600 pounds for 1/2" diameter.
16. All eye bolts, Hook bolts, turn buckles, and wire rope clamps shall be hot-dipped galvanized.



B SECTION - ROOF STRUCTURE

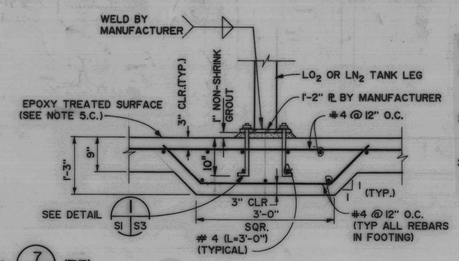
SCALE: 1/4" = 1'-0"



A SECTION - ROOF STRUCTURE

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

GRAPHIC SCALE: 1/4"= 1'-0" 2 0 2 4 6 8 10



SEE DETAIL 7 S1 S3 (TYP)

1 DETAIL-TYPICAL FOOTING AT NEW TANK LEGS

SCALE: 3/4" = 1'-0"

Installation Notes

1. Provide and secure foundations for the installation of Oxygen and Nitrogen Cryogenic Service Systems. Installation shall include all electrical wiring, piping connections and electro-mechanical systems.
2. Upon completion of installation, the Cryogenic Services System shall be pressure tested for leaks, safe operation of relief devices and inspection of electrical and piping systems.
3. The Cryogenic Service Systems shall be installed at the U.S. Naval Station Whidbey Island in accordance with design plans and specifications.

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S-1

REID MIDDLETON, 19031 33rd Ave. W., Suite 202, Lynnwood, Washington 98036, 206/775-3434

DSGN. KN	DR. BDM	CHK. JOO	
SUPV. KN		CH. ENGR. JOO	
SUBMITTED BY John O. Olsen (VICE PRES.)		DATE 7/20/89	
E.I.C. DIV. 5/21/92	FIRE PROT.		
SEC. HD.	DIV. HD 6/17/92		
SATISFACTORY TO		DATE	
TITLE			
APPROVED		DATE	
FOR COMMANDER NAVFAC			

JOHN O. OLSEN, STATE OF WASHINGTON, REGISTERED PROFESSIONAL CIVIL ENGINEER

CONCURRENCE PRO A.R. Sanders DATE 6/10/92

DEPARTMENT OF THE NAVY
NAVAL AIR STATION, WHIDBEY ISLAND, WASHINGTON

SPECIAL PROJECT E(C) (R) 9-87
REPLACE TANKS AT LOX FACILITY
BULK STORAGE AREA
PLANS & SECTIONS

SIZE	CODE IDENT. NO.	NAVFAC. DRAWING NO.
F	80091	6355203
		CONST. CONTR. NO. N62474-92-C-3049
SCALE AS SHOWN	SPEC. 12-92-3049	SHEET 4 OF 8

NASW 11100/1 (Rev 7-88) FILE: 2621 U.S. GOVERNMENT PRINTING OFFICE:1985-596-059

Replace Tanks at LOX Facility
N62474-92-C-3049
4 of 8

6355203

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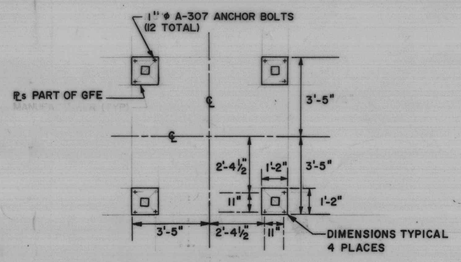
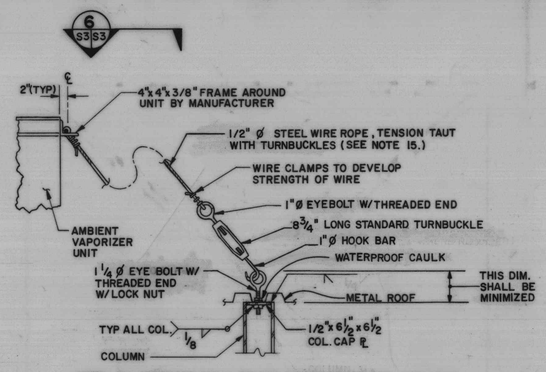
NAS ORIGINALS

REVISIONS				
SYM	DESCRIPTION	PREP'D BY	DATE	APPROVED
	GENERAL MODIFICATIONS I	ROG	5-20-92	

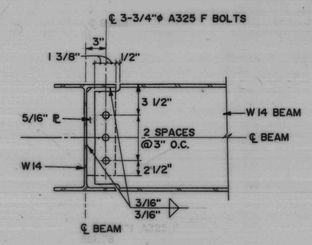


1 S1 S3 DETAIL - ANCHOR BOLT LAYOUT
SCALE: 3/8" = 1'

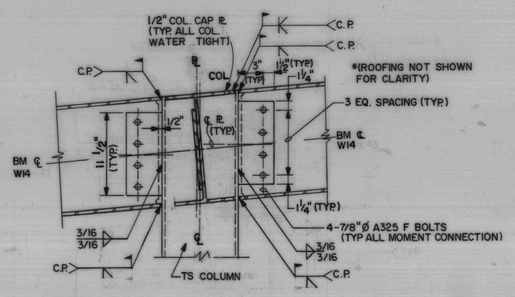


NOTE: ALL HARDWARE SHALL BE HOT-DIPPED GALVANIZED. TWO HOOK ASSEMBLIES MAY SHARE ONE EYE BOLT.

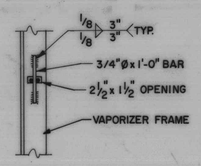
5 S1 S3 DETAIL - VAPORIZER UNIT HOLD DOWN
SCALE: 1" = 1'



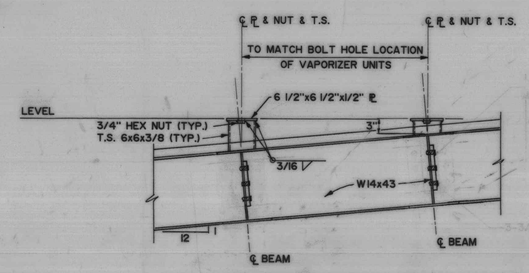
9 S1 S3 DETAIL - BEAM TO BEAM CONNECTION
SCALE: N.T.S.



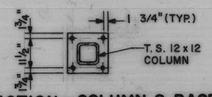
2 S1 S-3 DETAIL-TYPICAL BEAM COLUMN MOMENT CONNECTION
SCALE: NTS



6 S3 S3 DETAIL - CONNECTION
SCALE: 1" = 1'



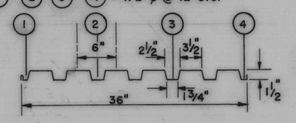
10 S1 S3 DETAIL - BEAM TO BEAM CONNECTION
SCALE: 1" = 1'-0"



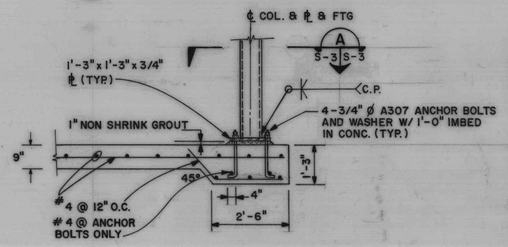
A S3 S3 SECTION - COLUMN & BASE PLATE
SCALE: 1/2" = 1'-0"

PUDDLE WELDS:

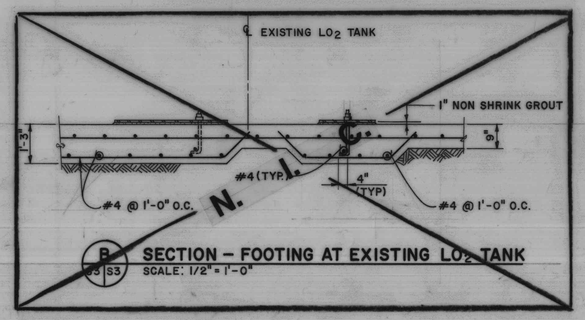
A. PARALLEL TO DECK RIBS - 1/2" ø @ 12" O.C.
B. PERPENDICULAR TO DECK RIBS AND PLACED IN FLUTES NO'S.
1 2 3 4 - 1/2" ø @ 12" O.C.



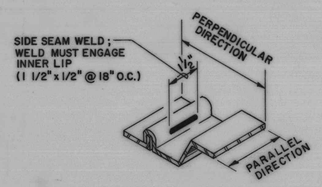
3 S1 S3 DETAIL - METAL ROOF
SCALE: N.T.S.



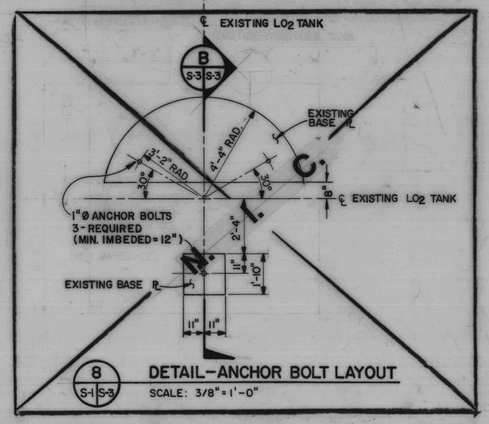
7 S1 S3 DETAIL - COLUMN AND BASE PLATES
SCALE: 1/2" = 1'-0"



B S3 S3 SECTION - FOOTING AT EXISTING LO_2 TANK
SCALE: 1/2" = 1'-0"



4 S1 S3 DETAIL - SIDE SEAM WELD
SCALE: N.T.S.



8 S-1 S-3 DETAIL-ANCHOR BOLT LAYOUT
SCALE: 3/8" = 1'-0"

IF SHEET IS LESS THAN 28" X 40" IT IS A REDUCED PRINT — SCALE REDUCED ACCORDINGLY

S-3

REID MIDDLETON, 19031 33rd Ave. W., Suite 303, P.O. Box 6638, Lynnwood, WA 98036-6638, 206/775-3434

DEPARTMENT OF THE NAVY
NAVAL AIR STATION, WHIDBEY ISLAND, WASHINGTON

DSGN. KN	DR. BDM	CHK. JOO
SUPV. KN		CH. ENGR. JOO
SUBMITTED BY	LNICE PRES.1	DATE 7/20/92
FOR DIVISION HEADS		
E.I.C. DK. 5/27/92	FIRE PROT.	
SEC. HD.	DIV. HD. 7/17/92	
SATISFACTORY TO		DATE 5/27/92
TITLE		
APPROVED		DATE
EFD FOR COMMANDER NAVFAC		

SPECIAL PROJECT E(C) (R) 9-87
REPLACE TANKS AT LOX FACILITY
DETAILS

SIZE	CODE IDENT. NO.	NAVFAC. DRAWING NO.
F	80091	6355205
		CONST. CONTR. NO. N62474-92-C-3049
SCALE AS SHOWN	SPEC. 12-92-3049	SHEET 5 OF 8

CONCURRENCE PRO — DATE 6/9/92

NASW 11100/1 (Rev 7-88) FILE: 2621 U.S. GOVERNMENT PRINTING OFFICE-1985-596-298

Replace Tanks at LOX Facility N62474-92-C-3049 5 of 8

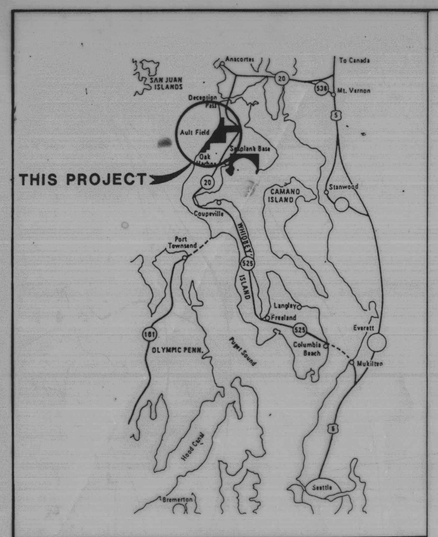
6355205

EAG FILE CORR. IRVINE, CA.

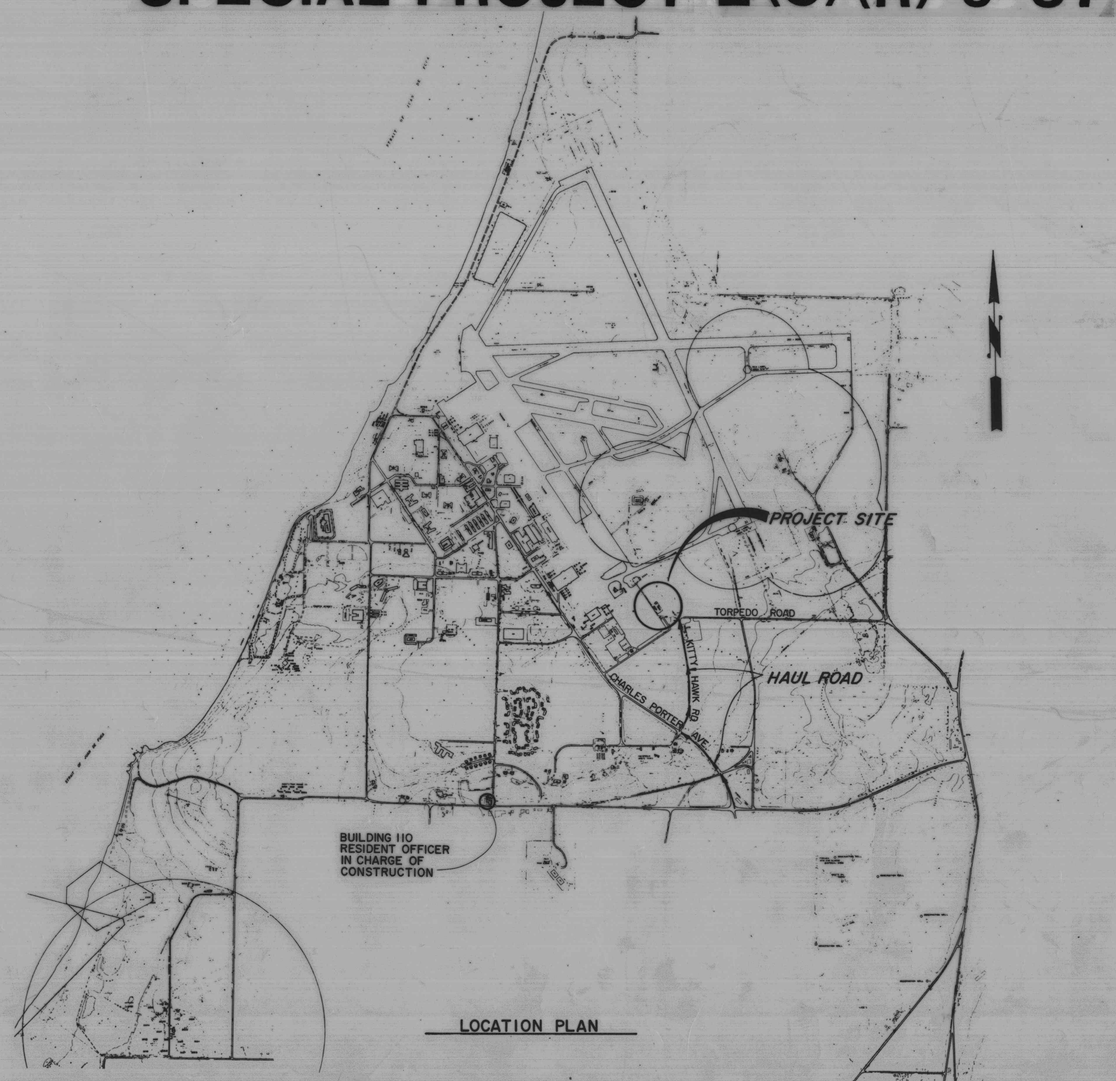
NAS ORIGINAL

REVISIONS				
SYM	DESCRIPTION	PREP'D BY	DATE	APPROVED
	GENERAL MODIFICATIONS I	ROG	5-20-92	

NAS WHIDBEY ISLAND
OAK HARBOR, WASHINGTON
REPLACE TANKS AT LOX FACILITY
SPECIAL PROJECT E(C)(R) 9-87



VICINITY MAP
Not to Scale



LOCATION PLAN

LIST OF DRAWINGS

SHEET	NO.	DRAWING TITLE	NAVFAC DWG
T-1	1	TITLE SHEET	6355200
C-1	2	DEMOLITION PLAN AND DETAILS	6355201
GT-1	3	SOILS BORING LOGS	6355202
S-1	4	BULK STORAGE AREA PLANS & SECTIONS	6355203
~~S-2~~	~~5~~	~~BULK STORAGE AREA PLANS & SECTIONS~~	~~6355204~~
S-3	5	DETAILS	6355205
M-1	6	LEGEND, SCHEDULES, SECTIONS & DETAILS	6355206
M-2	7	FLOOR PLAN	6355207
E-1	8	ELECTRICAL PLANS & DETAILS	6355208

IF SHEET IS LESS THAN
28" X 40"
IT IS A REDUCED PRINT —
SCALE REDUCED ACCORDINGLY

T-1

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JOHN O. OLSEN
STATE OF WASHINGTON
12016
REGISTERED
PROFESSIONAL CIVIL ENGINEER

DSGN. JAK	DR. BDM	CHK. JOO	
SUPV. JAK		CH. ENGR. JOO	
SUBMITTED BY (VICE PRES.)		DATE 7/10/92	
FAC MGMT (TITLE)			
E.I.C. 5/27/92		FIRE PROT.	
SEC HD		DIV. HD 6/17/92	
SATISFACTORY TO		DATE	
TITLE			
APPROVED		DATE	
EFD FOR COMMANDER NAVFAC			

CONCURRENCE PRO — DATE 6/19/92

DEPARTMENT OF THE NAVY
NAVAL AIR STATION, WHIDBEY ISLAND, WASHINGTON

SPECIAL PROJECT E(C)(R) 9-87
REPLACE TANKS AT LOX FACILITY
TITLE SHEET

SIZE	CODE IDENT. NO.	NAVFAC DRAWING NO.
F	80091	6355200
SCALE AS SHOWN		CONST. CONTR. NO. N62474-92-C-3049
		SPEC. 12-92-3049 — SHEET 1 OF 8

NASW 11100/1 (Rev 7-88)

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FILE (9)

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6355200

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1 of 8

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