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CONFIRMATION ASSESSMENT LETTER REPORT FOR AREA OF CONCERN C NS
MAYPORT FL
11/1/1999
TETRA TECH NUS

**CONFIRMATION ASSESSMENT
LETTER REPORT
AOC C**

Naval Station Mayport
Mayport, Florida



**Southern Division
Naval Facilities Engineering Command
Contract Number N62467-94-D-0888
Contract Task Order 0094**

November 1999

629

19.03.00.0020

PROFESSIONAL CERTIFICATION

Confirmation Assessment Letter Report

Area of Concern C

Naval Station Mayport

Jacksonville, Florida

This Confirmation Assessment Letter Report has been prepared under the supervision of a Florida-registered Professional Geologist. The work and professional opinion rendered in this report were conducted or developed in accordance with commonly accepted procedures consistent with applicable standards or practice.



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TtNUS-FY99-0228

November 5, 1999

Project Number 0199

Commanding Officer
Department of the Navy
SOUTHNAVFACENGCOM
ATTN: Ms. Adrienne Wilson
2155 Eagle Drive
North Charleston, South Carolina 29406

**Reference: Clean Contract No. N62467-94-D-0888
Contract Task Order No. 0094**

**Subject: Confirmation Assessment Letter Report
AOC C, Naval Station Mayport
Jacksonville, Florida**

Dear Ms. Wilson:

Tetra Tech NUS, Inc. (TtNUS) is pleased to submit this Confirmation Assessment (CA) Letter Report for the referenced Contract Task Order (CTO). This report was prepared for the U.S. Navy Southern Division Naval Facilities Engineering Command under CTO 0094, for the Comprehensive Long-term Environmental Action Navy (CLEAN) Contract Number N62467-94-D-0888. The contents of this report document the field work, results, and recommendations for this Confirmation Assessment.

On September 22, forty-five monitoring wells in the vicinity of Area of Concern (AOC) C were surveyed for depth to water, total depth, and top-of-casing elevation. AOC C is located southeast of the NAVSTA Mayport Turning Basin and includes buildings and facilities around the southern portion of Echo Pier, Building 191, and the Shore Intermediate Maintenance Activity (SIMA) Building, Building 1488. A site map with existing monitoring well locations is shown in **Figure 1**.

Water level measurements were recorded at each well with an electronic water level measurement probe. The depth to water ranged from 2.34 to 4.75 feet below land surface (bls). The top of casing elevations were then surveyed relative to the known elevation of monitoring well MPT-20-MW03S (HLA, *Solid Waste Management Unit Assessment Report for Tetrachloroethene Release near Building 191 U. S. Naval Station, Mayport, Florida*, April 17, 1996). These survey results were used to calculate groundwater elevations above mean sea level (msl) (**Table 1**). **Figures 2, 3, and 4** depict the potentiometric surface for the shallow (0-20 ft. bls), intermediate (20-35 ft. bls), and deep (35-50 ft. bls) monitoring wells respectively. Groundwater flows in a northwesterly direction toward the Turning Basin in all three zones of the aquifer. This consistency in groundwater elevations and flow indicates the lack of a continuous confining unit across the site.

Monitoring wells MPT-EP 01, MPT-EP-02, MPT-EP-03 and MPT-EP-DPW021 were suspected to contain free product and therefore were not included in this round of water levels.

There appears to be a groundwater high in the vicinity of the Building 191 source area, which is the location of a tetrachloroethene release that occurred in 1993. TtNUS proposes the installation of three shallow piezometers in this area to further assess the local groundwater flow. On the southern side of Building 191, monitoring well MPT-TC-MW01S was found to have no-expandable cap seal. The water table elevation for this well was therefore considered suspect and was not considered in the shallow aquifer potentiometric map.

Based on groundwater flow and analytical results collected during previous investigations (HLA, *Technical Memorandum of Groundwater Assessment of Tetrachloroethene Release at Building 191*, January 1999), TtNUS proposes that twenty-nine additional monitoring wells be installed in AOC C. The proposed locations for the wells are shown in **Figure 5**.

Of the 29 monitoring wells, 24 will be clusters of 3 nested wells located along the boundaries of AOC C. These clusters will include one shallow well (0-20 ft. bls), one intermediate well (20-35 ft. bls), and one deep well (35-50 ft. bls). Two well clusters will be installed along AOC C's southern boundary. One cluster will be installed to the west of Building 191, on the western side of the newly installed retention pond. Two clusters will be installed to the east of SIMA, and one cluster will be installed to the north of SIMA. One cluster will be installed along the portion of the pier that borders Massey Avenue, and one cluster will be installed along the northern portion of Echo Pier. These monitoring well clusters will help delineate the vertical and horizontal boundaries of groundwater contamination at AOC C.

Two monitoring wells are proposed in locations to determine and/or confirm the vertical or horizontal migration of the existing contaminant plume. These monitoring wells are proposed to the northwest of existing wells MPT-TC-DPW02D and DD. Samples from these existing deep wells historically contained the highest concentrations of trichloroethene (TCE) at 810 $\mu\text{g}/\ell$ and tetrachloroethene (PCE) at 120 $\mu\text{g}/\ell$. One monitoring well will be installed to 30 ft. bls, the depth of well MPT-TC-DPW02D. The deeper well will be installed to 50 ft. bls to determine if any vertical migration of contaminants has occurred.

Three deep monitoring wells are proposed for the Echo Pier area. Vinyl chloride was detected in shallow monitoring wells MPT-EP-MW03S, MPT-EP-MW04S, and MPT-EP-DPW02I at concentrations exceeding the Florida Department of Environmental Protection (FDEP) standards (HLA, 1999). Installation of three deep wells to 40 ft. bls is proposed to determine if vertical migration of vinyl chloride has occurred.

Prior to monitoring well installation, selected existing monitoring wells will be sampled to confirm the presence of contamination. The wells to be sampled were chosen based on historic exceedences and their proximity to the source area. **Table 2** presents the rationale for sampling these wells. Analytical results from the proposed sampling event may affect the new monitoring well locations.

If you have any questions with regard to this submittal, please contact Terry Hansen at (850) 385-9899.

Very truly yours,



Abby Wilcox
Project Geologist



Debbie Wroblewski
Program Manager

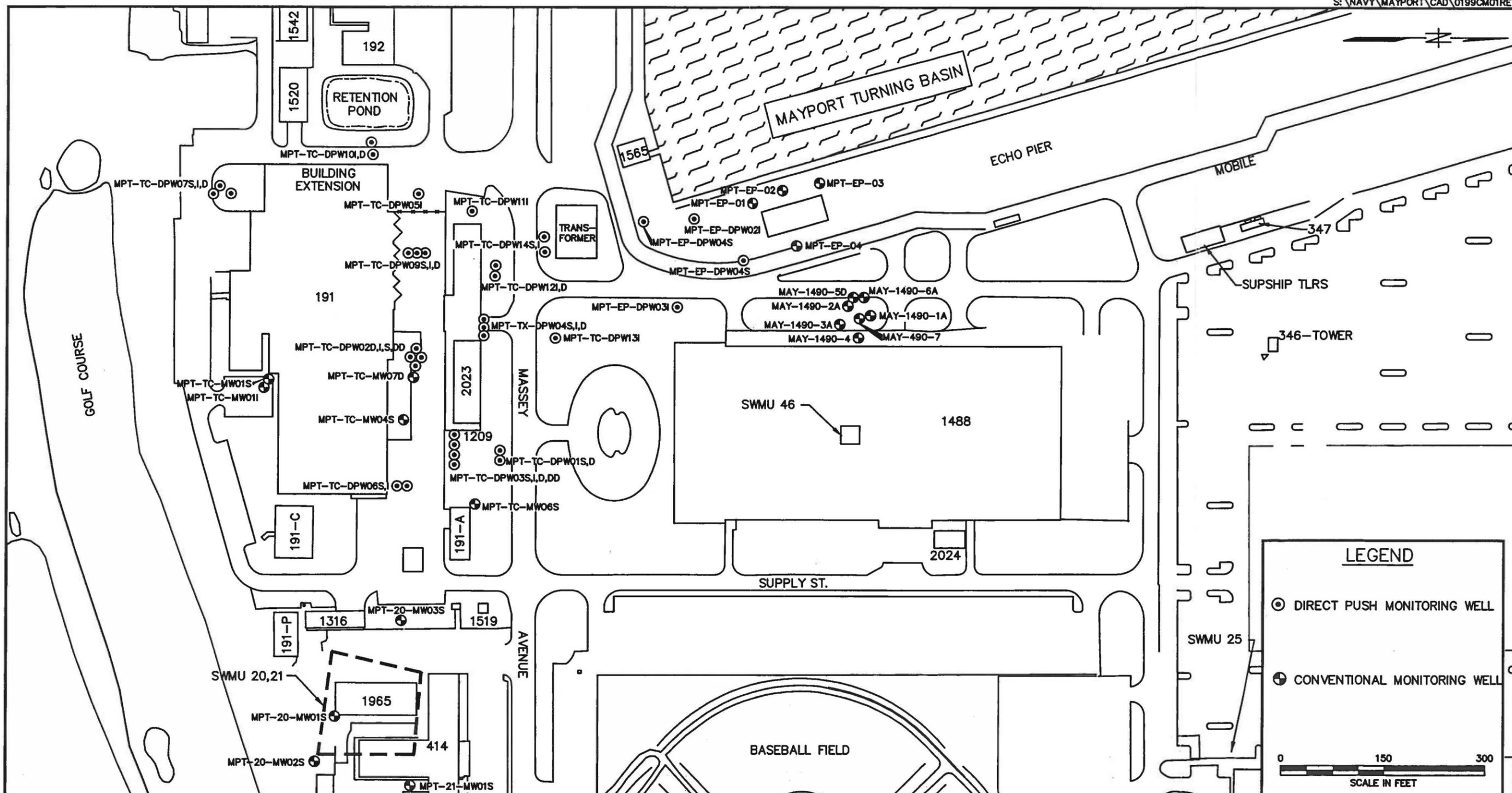
TH/abw

Enclosures

cc: Mr. Randy Bishop (NAVSTA Mayport)
Mr. Mark Dunn (BEI)
Ms. Martha Berry (USEPA Region IV)
Mr. Jim Cason (FDEP)
Mr. Frank Lesesne (HLA)
Mr. Charles Radford (CH2MHill)

Ms. Adrienne Wilson
SOUTHNAVFACENGCOM
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bcc: Ms. Debbie Wroblewski (Cover Letter Only)
Mr. Mark Perry/ File
file



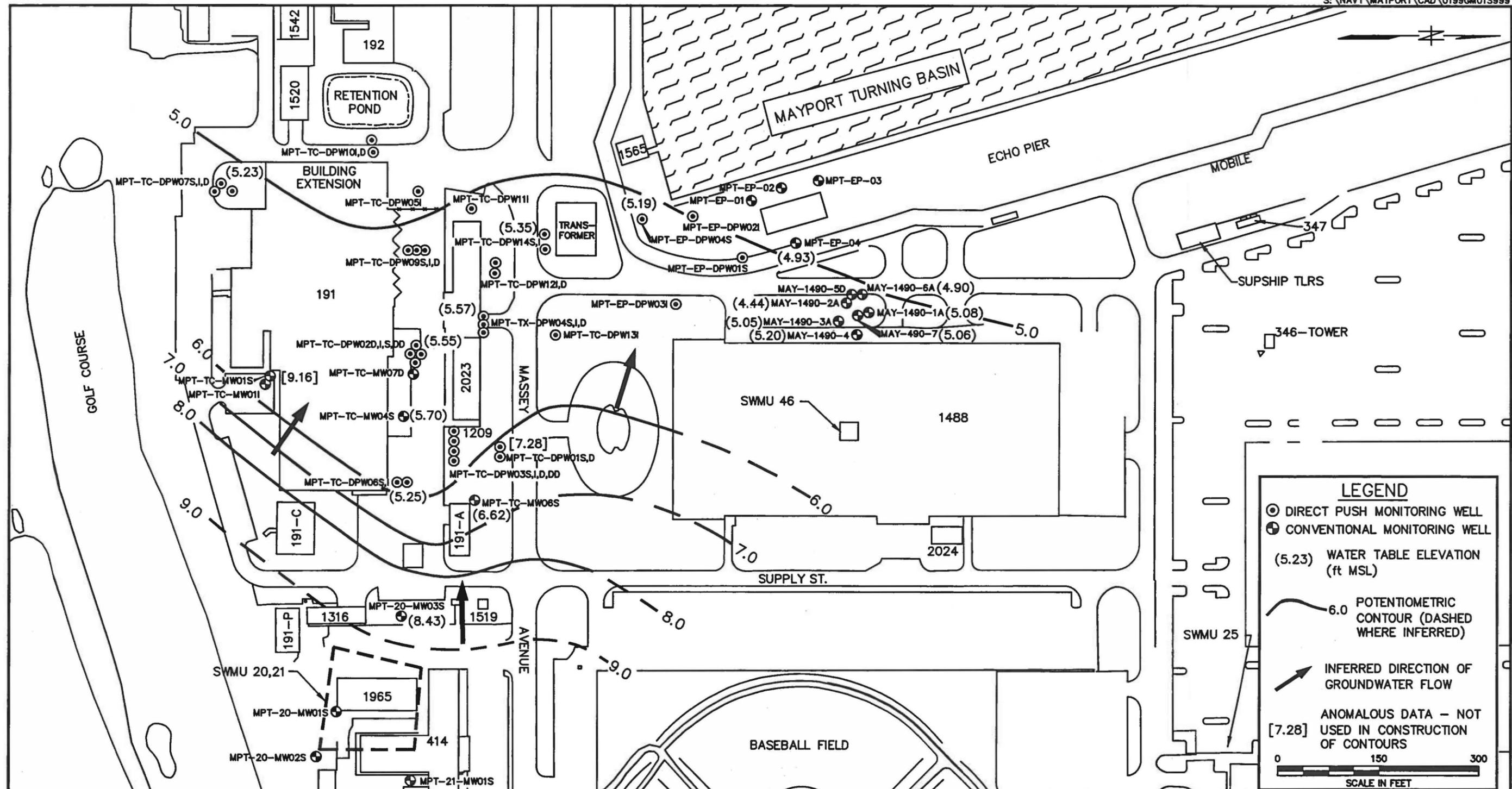
NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY	DATE
LLK	10/19/99
CHECKED BY	DATE
COST/SCHED-AREA	
SCALE	
AS NOTED	



DIRECT PUSH AND CONVENTIONAL
MONITORING WELL LOCATIONS
AREA OF CONCERN "C"
U.S. NAVAL STATION
MAYPORT, FLORIDA

CONTRACT NO. 0199	
APPROVED BY	DATE
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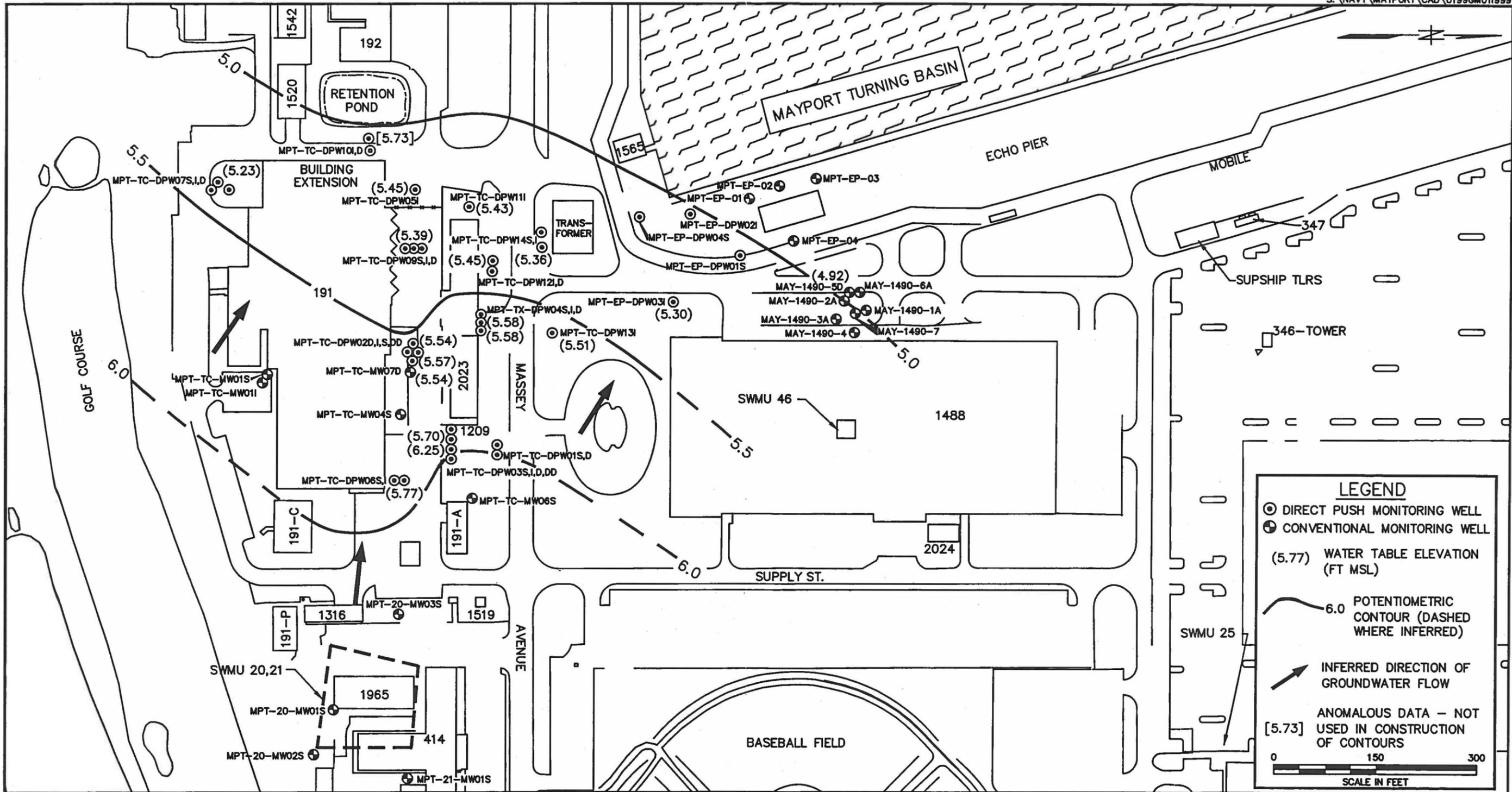


LEGEND

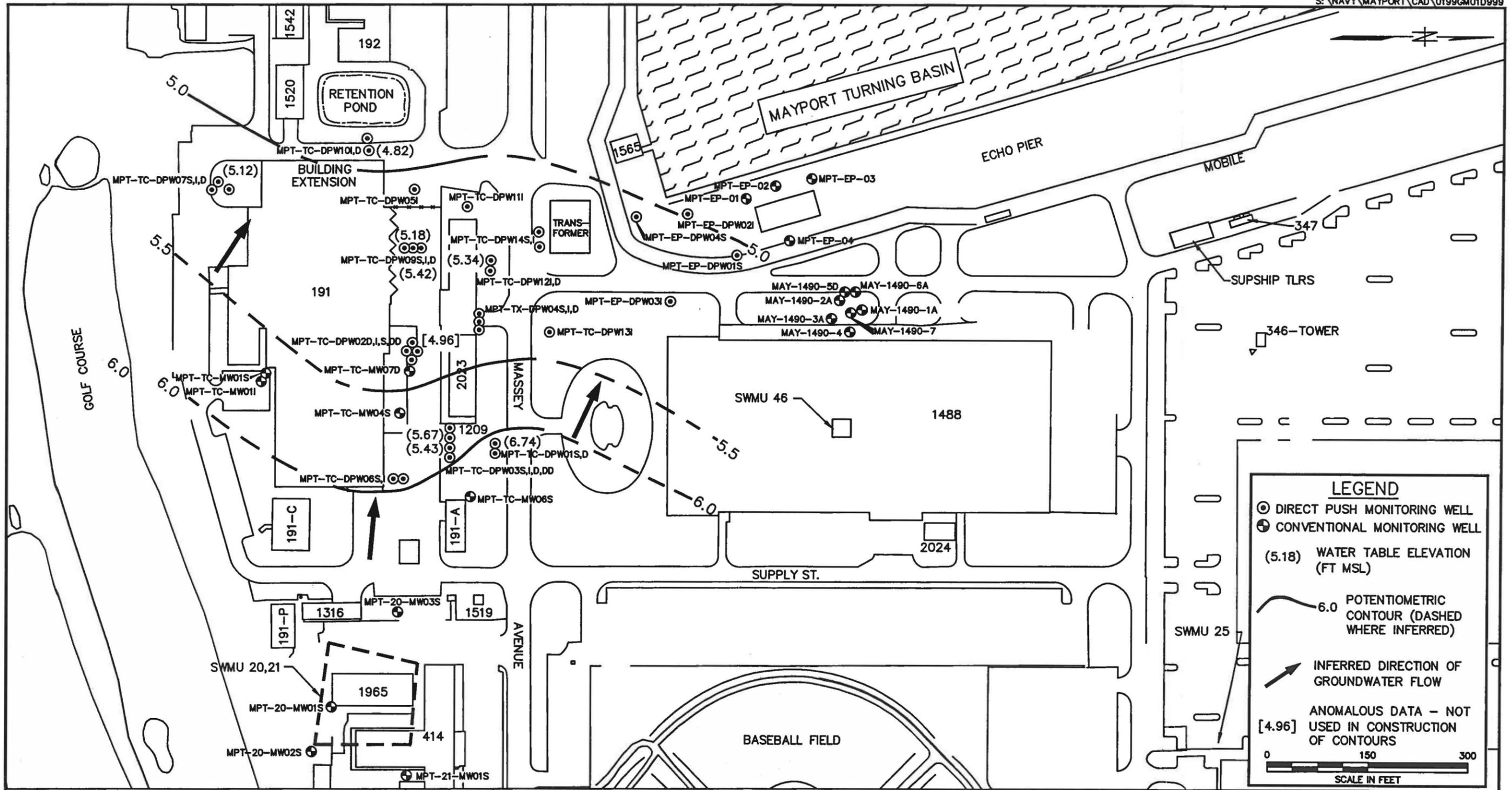
- ⊙ DIRECT PUSH MONITORING WELL
- ⊕ CONVENTIONAL MONITORING WELL
- (5.23) WATER TABLE ELEVATION (ft MSL)
- 6.0 POTENTIOMETRIC CONTOUR (DASHED WHERE INFERRED)
- ➔ INFERRED DIRECTION OF GROUNDWATER FLOW
- [7.28] ANOMALOUS DATA - NOT USED IN CONSTRUCTION OF CONTOURS

0 150 300
SCALE IN FEET

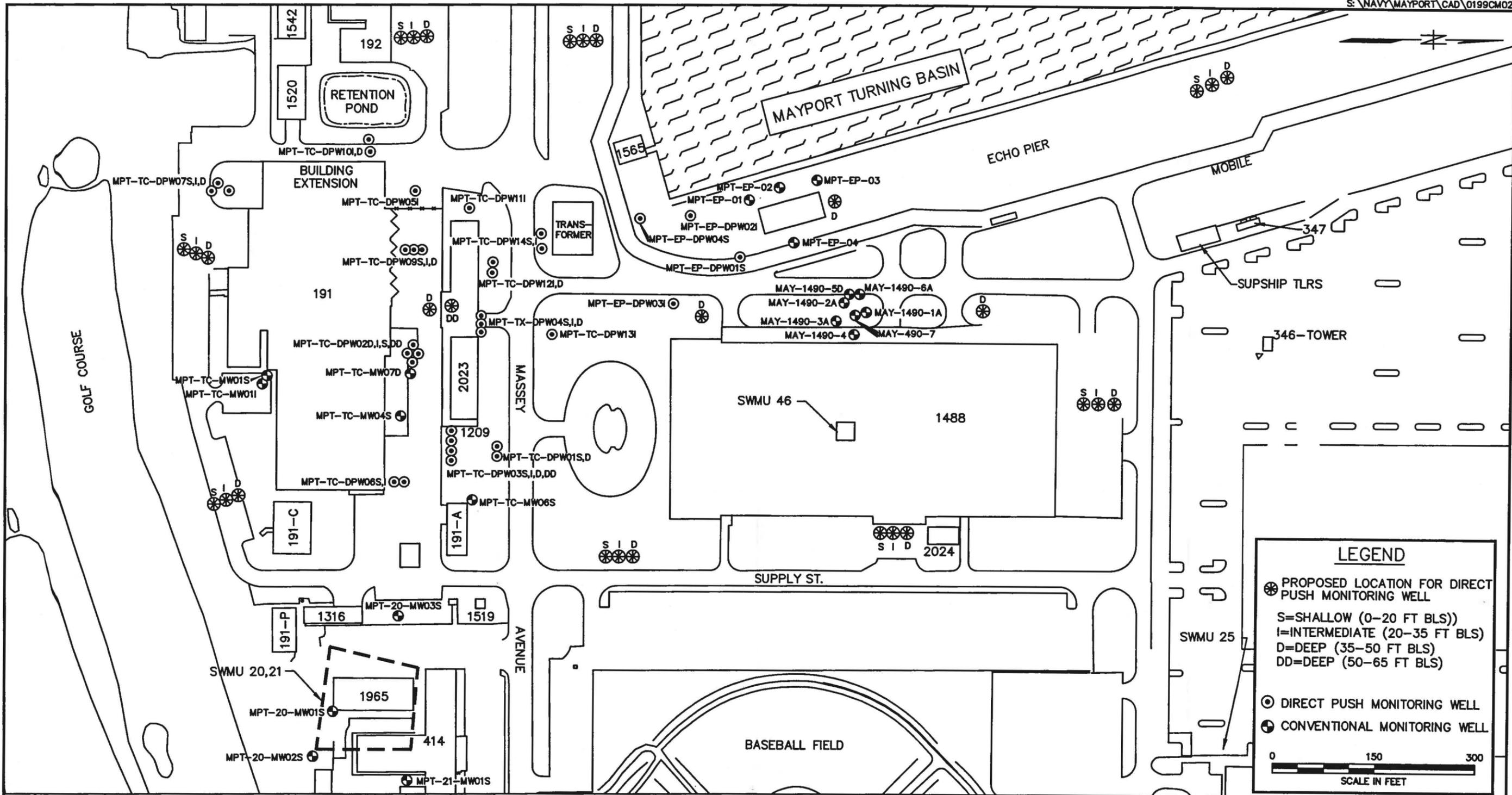
NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES	DRAWN BY	DATE		POTENTIOMETRIC SURFACE SHALLOW AQUIFER ZONE (0-20 ft bls) AREA OF CONCERN "C" U.S. NAVAL STATION MAYPORT, FLORIDA	CONTRACT NO. 0199	
							LLK	10/19/99			APPROVED BY	DATE
											APPROVED BY	DATE
											DRAWING NO.	REV.
											FIGURE 2	0



NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES	DRAWN BY	DATE		POTENTIOMETRIC SURFACE MAP INTERMEDIATE AQUIFER ZONE (20-35 ft bls) SEPTEMBER 22, 1999 AREA OF CONCERN "C" U.S. NAVAL STATION MAYPORT, FLORIDA		CONTRACT NO. 0199	
							LLK	10/19/99		APPROVED BY	DATE	APPROVED BY	DATE
											DRAWING NO. FIGURE 3	REV. 0	



NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES	DRAWN BY	DATE		POTENTIOMETRIC SURFACE MAP DEEP AQUIFER ZONE (35-50 ft bls) SEPTEMBER 22, 1999 AREA OF CONCERN "C" U.S. NAVAL STATION MAYPORT, FLORIDA		CONTRACT NO. 0199		
							LLK	10/28/99		APPROVED BY	DATE		DRAWING NO.	REV.
										APPROVED BY	DATE		FIGURE 4	0



LEGEND

- ⊗ PROPOSED LOCATION FOR DIRECT PUSH MONITORING WELL
- S=SHALLOW (0-20 FT BLS)
- I=INTERMEDIATE (20-35 FT BLS)
- D=DEEP (35-50 FT BLS)
- DD=DEEP (50-65 FT BLS)
- ⊙ DIRECT PUSH MONITORING WELL
- ⊕ CONVENTIONAL MONITORING WELL

0 150 300
SCALE IN FEET

NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY LLK 10/23/99
 CHECKED BY DATE
 COST/SCHED-AREA
 SCALE AS NOTED



PROPOSED DIRECT PUSH MONITORING WELL LOCATIONS
 AREA OF CONCERN "C"
 U.S. NAVAL STATION
 MAYPORT, FLORIDA

CONTRACT NO. 0199	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 5	REV. 0

**Table 1
Groundwater Elevations
September 22, 1999**

AOC C Confirmation Assessment
Mayport Naval Station
Jacksonville, Florida

Well ID	Groundwater Elevation (above msl)	Total Depth	Well ID	Groundwater Elevation (above msl)	Total Depth
MPT-TC-DPW1S	7.28	8.50	MPT-TC-MW01S	9.16	11.79
MPT-TC-DPW1D	6.74	41.04	MPT-20-MW3S	8.43	13.10
MPT-TC-DPW2S	5.55	7.21	MPT-TC-MW6S	6.62	10.15
MPT-TC-DPW2I	5.54	21.77	MPT-TC-MW7D	5.54	31.19
MPT-TC-DPW2D	5.57	32.02	MPT-TC-MW04S	5.70	12.91
MPT-TC-DPW02DD	4.96	46.20	MPT-EP-DPW02I	-	31.45
MPT-TC-DPW3S	6.25	26.55	MPT-EP-DPW03I	5.30	25.85
MPT-TC-DPW3I	5.70	26.54	MPT-EP-DPW04S	5.19	10.42
MPT-TC-DPW3D	5.67	39.92	MP-EP-01	-	17.10
MPT-TC-DPW3DD	5.43	44.92	MP-EP-02	-	17.23
MPT-TC-DPW4S	5.57	8.00	MP-EP-03	-	17.08
MPT-TC-DPW4I	5.58	21.26	MP-EP-04	4.93	17.40
MPT-TC-DPW4D	5.58	32.49	MAY-1490-1A	5.08	12.34
MPT-TC-DPW5I	5.45	31.01	MAY-1490-2A	5.05	10.98
MPT-TC-DPW6S	5.25	8.24	MAY-1490-3A	3.90	2.49
MPT-TC-DPW6I	5.77	26.48	MAY-1490-4	5.20	13.26
MPT-TC-DPW7S	5.23	15.09	MAY-1490-5D	4.92	22.75
MPT-TC-DPW7I	5.23	31.57	MAY-1490-6A	4.90	12.33
MPT-TC-DPW7D	5.12	42.29	MAY-1490-7	5.06	12.37
MPT-TC-DPW9S	5.39	30.74			
MPT-TC-DPW9I	5.42	37.94			
MPT-TC-DPW9D	5.18	45.57			
MPT-TC-DPW10I	5.73	30.18			
MPT-TC-DPW10D	4.82	45.21			
MPT-TC-DPW11I	5.43	31.31			
MPT-TC-DPW12I	5.45	30.55			
MPT-TC-DPW-12D	5.34	35.77			
MPT-TC-DPW13I	5.51	30.81			
MPT-TC-DPW14S	5.35	15.21			
MPT-TC-DPW14I	5.36	30.69			

NOTES

- measurement not taken

Table 2
Monitoring Well Sampling Rationale

AOC C Confirmation Assessment
Mayport Naval Station
Jacksonville, Florida

Well ID	Rationale
MPT-TC-DPW1S	proximity to source area
MPT-TC-DPW1D	proximity to source area
MPT-TC-DPW2D	confirm TCE and PCE exceedances
MPT-TC-DPW02DD	determine contaminant vertical migration from upper aquifer zone
MPT-TC-DPW3S	proximity to source area
MPT-TC-DPW3I	proximity to source area
MPT-TC-DPW3D	proximity to source area
MPT-TC-DPW3DD	proximity to source area
MPT-TC-DPW06S	proximity to source area
MPT-TC-DPW06I	proximity to source area
MPT-TC-DPW09I	confirm historic TCE exceedance
MPT-TC-DPW09D	determine contamination vertical migration from upper aquifer zone
MPT-TC-DPW07D	confirm 1,1-Dichloroethene exceedance
MPT-TC-MW04S	confirm TCE and PCE exceedances
MPT-EP-MW02I	confirm vinyl chloride exceedance
MPT-EP-MW03S	confirm vinyl chloride exceedance
MPT-EP-MW04S	confirm vinyl chloride exceedance
Notes	
Exceedences based on Florida Department of Environmental Protection (FDEP) groundwater criteria	