

NOTES:  
- ASSUMED ELEVATION  
- THIS DOES NOT CONSIST  
OF A BOUNDARY SURVEY

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HARE CREEK TOPO MAP  
GROUP II COMMERCIAL REAL ESTATE  
FORT BRAGG  
HARE CREEK CENTER

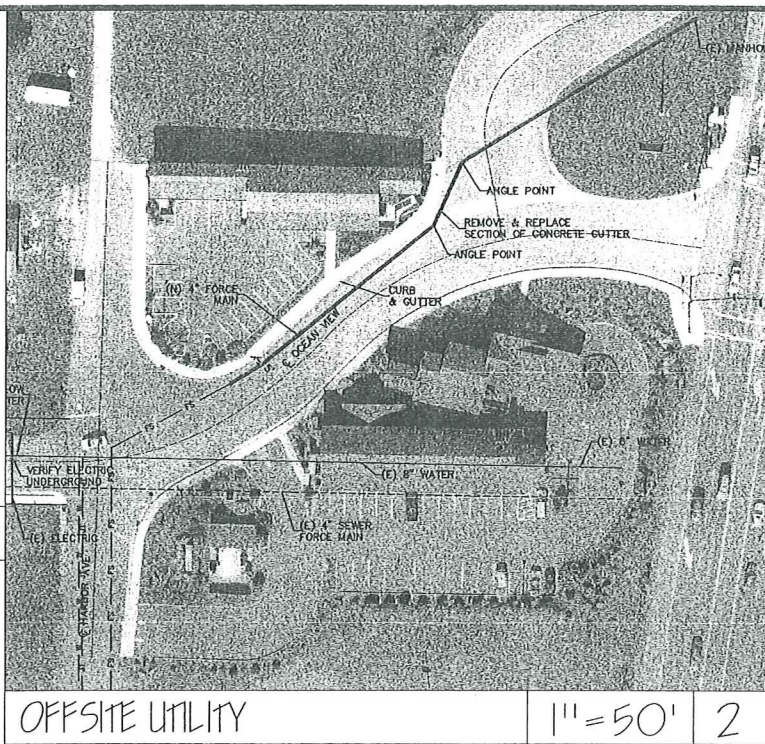
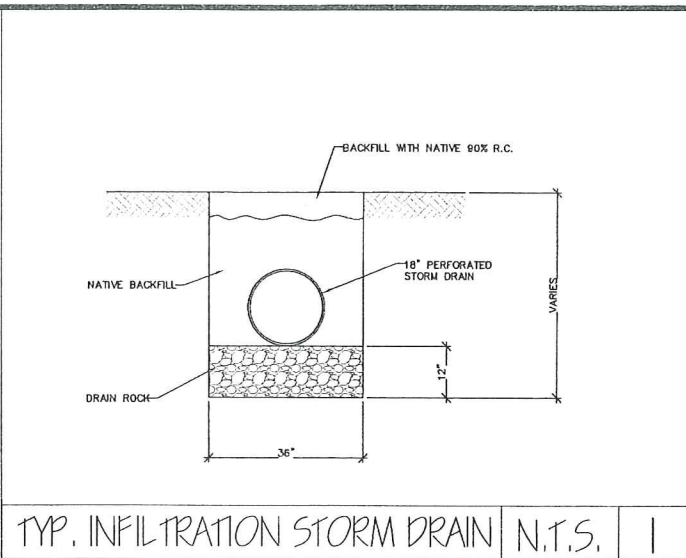
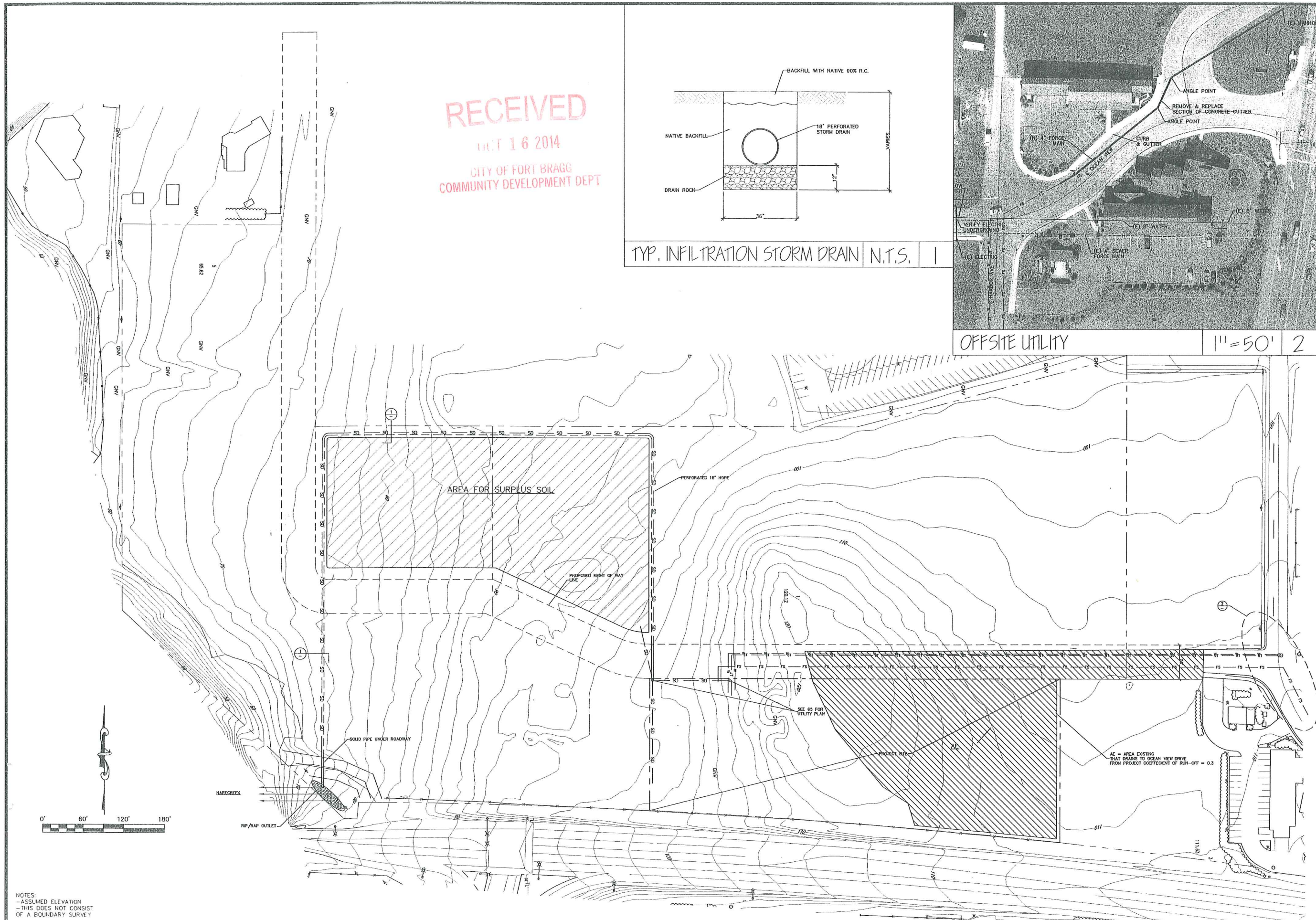
JOB #11042  
DRAWN: JH  
DATE: 10/16/2014  
SCALE: AS SHOWN  
APPROVED:  
R.C.E. 19461



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HARE CREEK OFFSITE IMPROVEMENT PLAN  
GROUP II COMMERCIAL REAL ESTATE  
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HARE CREEK CENTER

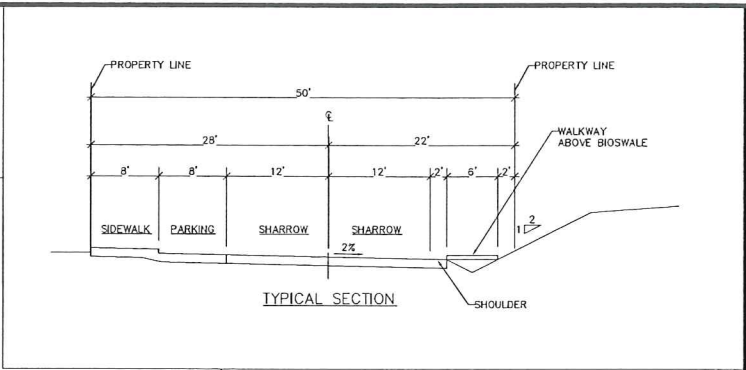
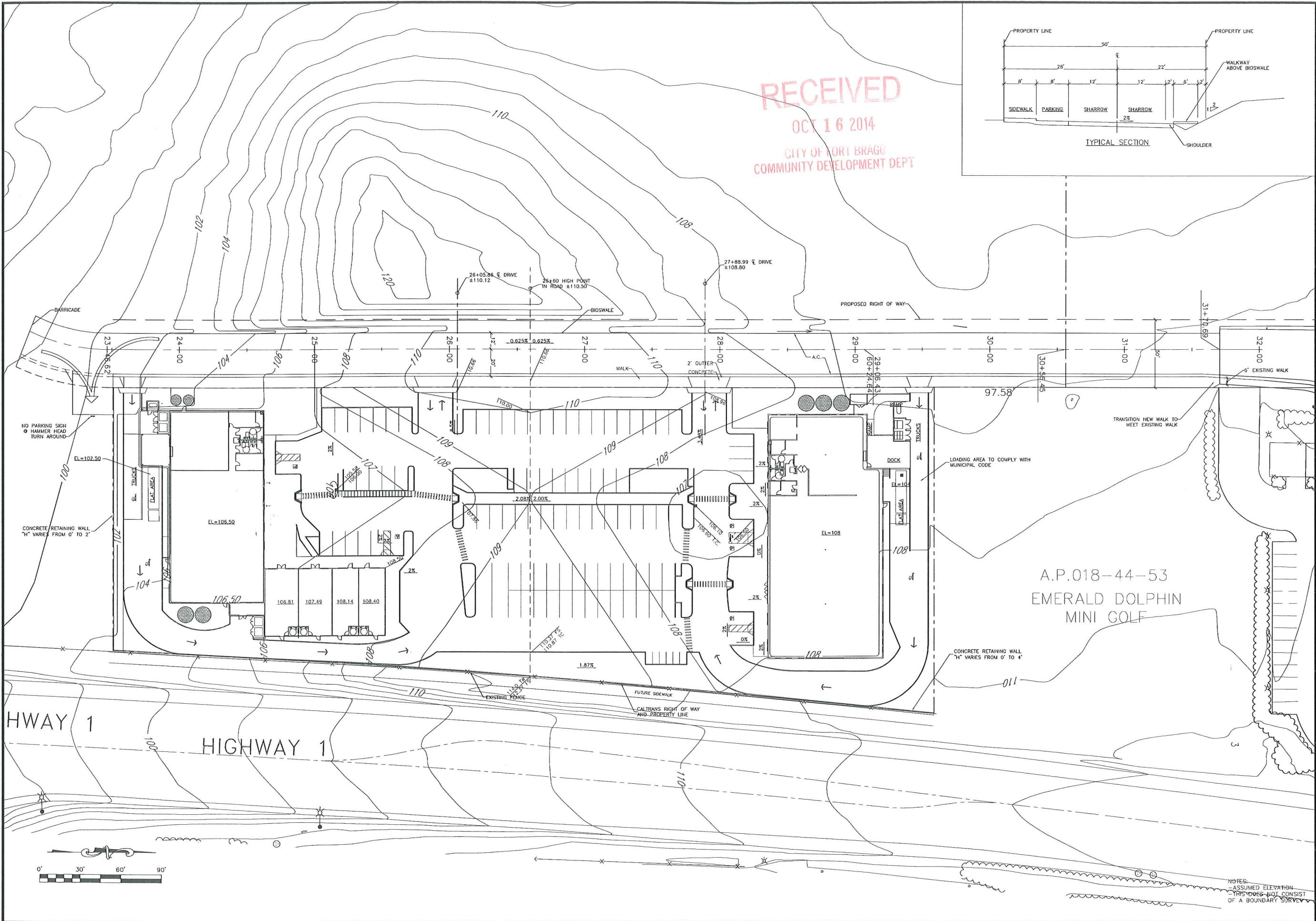
JOB #1042	DRAWN TH	DATE 10/16/2014	SCALE AS SHOWN	APPROVED	R.C.E. 19461
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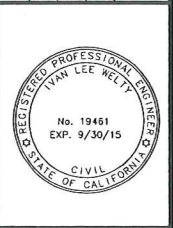


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HARE CREEK GRADING PLAN  
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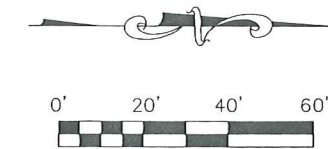


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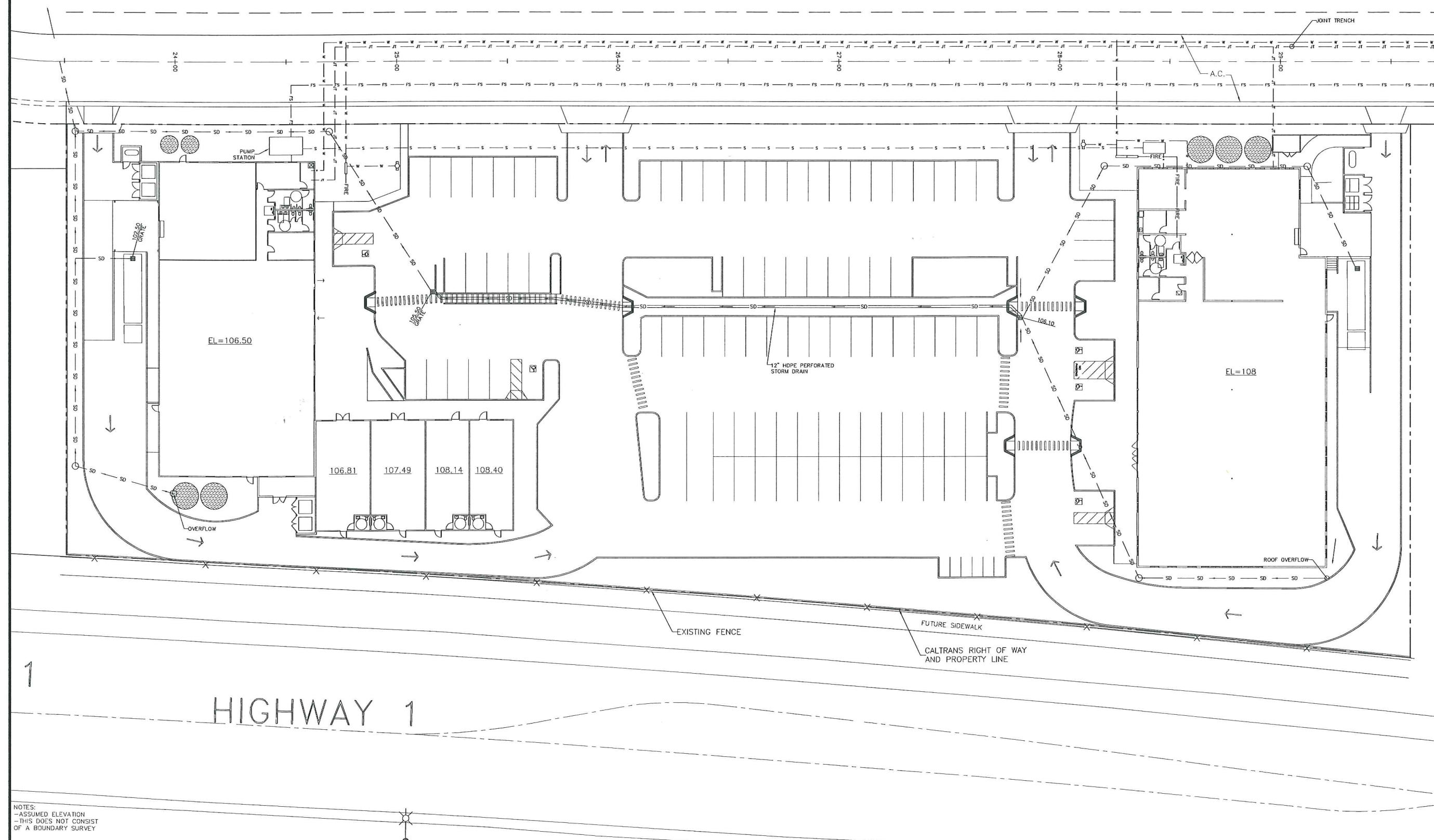


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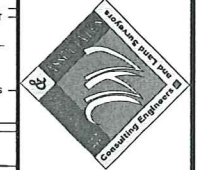
UTILITY LEGEND	
	12" HDPE PERFORATED STORM DRAIN
	12" HDPE STORM DRAIN
	FORCE SEWER LINE
	SEWER LINE
	WATER
	FIRE WATER LINE
	JOINT TRENCH

RESIDUAL DRAINAGE  
TO INFILTRATION TRENCH



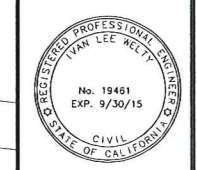
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HARE CREEK UTILITY PLAN  
GROUP II COMMERCIAL REAL ESTATE  
FORT BRAGG  
HARE CREEK CENTER

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# STORM WATER MANAGEMENT STRATEGY

THE STORM WATER THAT COMES IN CONTACT WITH THE PARKING LOT WHERE POSSIBLE CONTAMINATED SOIL SUCH AS OIL AND HEAVY METALS ARE DIRECTED INTO BIOSWALES AND FILTERS PRIOR TO MOVING ON. THE INITIAL RAINFALL QUANTITIES SHOWN AS THE 85TH PERCENTILE STORM IS USED TO SIZE THE TREATMENT BMP'S. THIS DESIGN PROCESS MEETS WITH THE REQUIREMENTS OF MUNICIPAL CODE SECTION 17.64.045 DEVELOPMENTS OF SPECIAL WATER QUALITY.

IN ADDITION TO WATER QUALITY, MUNICIPAL CODE SECTION 17.64.040 REQUIRES THE DEVELOPER TO MITIGATE 20% OF THE CHANGE IN RUNOFF. THE PROJECT STRATEGY FOR THE 20% RUNOFF REQUIREMENT IS AS FOLLOWS: TAKE ALL RUNOFF FROM ROOFS OF ALL BUILDING AND DIRECT TO THE SEVEN TANKS THAT TOTAL 60,000 GALLON CAPACITY. DURING THE STORM, PUMP THE REMAINING RUNOFF FROM THE PARKING LOT AFTER IT HAS BEEN FILTERED INTO THE TANKS. USING A 10 YEAR STORM DESIGN AND INITIAL TIME OF CONCENTRATION OF 10 MINUTES WE CALCULATE THAT THE TANKS WILL BE FULL IN 30 MINUTES. AT THE NEW TIME OF CONCENTRATION OF 40 MINUTES THE RUNOFF HAS BEEN REDUCED IN HALF. WE HAVE DESIGNED AN INFILTRATION STORM DRAIN TRENCH THAT TOTALS 1040 L.F. WITH A 3' WIDE ROCK AREA PRIOR TO ALLOWING THE FLOW TO DRAIN TOWARD HARECREEK. THE INFILTRATION TRENCH HAS A CAPACITY OF 279 GALLONS PER MINUTE (GPM). WITH THE COMBINATION OF THE 60,000 GALLON HOLDING TANKS AND THE INFILTRATION TRENCH WE HAVE REDUCED THE FLOW TO EQUAL THE FLOW FROM THE PROPERTY PRIOR TO DEVELOPMENT AT THIS STORM FREQUENCY. WE HAVE ACCOUNTED FOR 100% OF THE DEVELOPMENT INSTEAD OF THE REQUIRED 20%.

OFFSITE DRAINAGE- PRE-CONSTRUCTION DRAINAGE THAT WAS DIRECTED TO OCEAN VIEW DRIVE TOTALLED 89,183 S.F. WITH A COEFFICIENT OF RUN OFF OF 0.3. THE POST CONSTRUCTION RUNOFF FROM THE PROJECT WILL BE 20,444 S.F. WITH A COEFFICIENT OF RUNOFF OF 1.0. THERE WILL BE NO ADDITIONAL RUNOFF TOWARD OCEAN VIEW DRIVE WITH THE DEVELOPMENT.

## 10 YEAR STORM VALUES GALLONS PER MINUTE (GPM)

BUILDING A	370.7 GPM
BUILDING B	247.7 GPM
BUILDING C	111.3 GPM
BUILDING TOTAL	729.7 GPM
A.C. TOTAL	1626.9 GPM
TOTAL	2356.6 GPM
20% =	471.2 GPM

## AREAS:

BUILDING A	= 15,000 SQ. FT.
BUILDING B	= 10,011 SQ. FT.
BUILDING C	= 4,500 SQ. FT.
SUB TOTAL	= 29,511 SQ. FT.

A.C. D	= 16,889 SQ. FT.
A.C. E	= 9,044 SQ. FT.
A.C. F	= 10,464 SQ. FT.
A.C. G	= 13,413 SQ. FT.
A.C. H	= 7,388 SQ. FT.
A.C. I	= 3,730 SQ. FT.
A.C. J	= 4,872 SQ. FT.

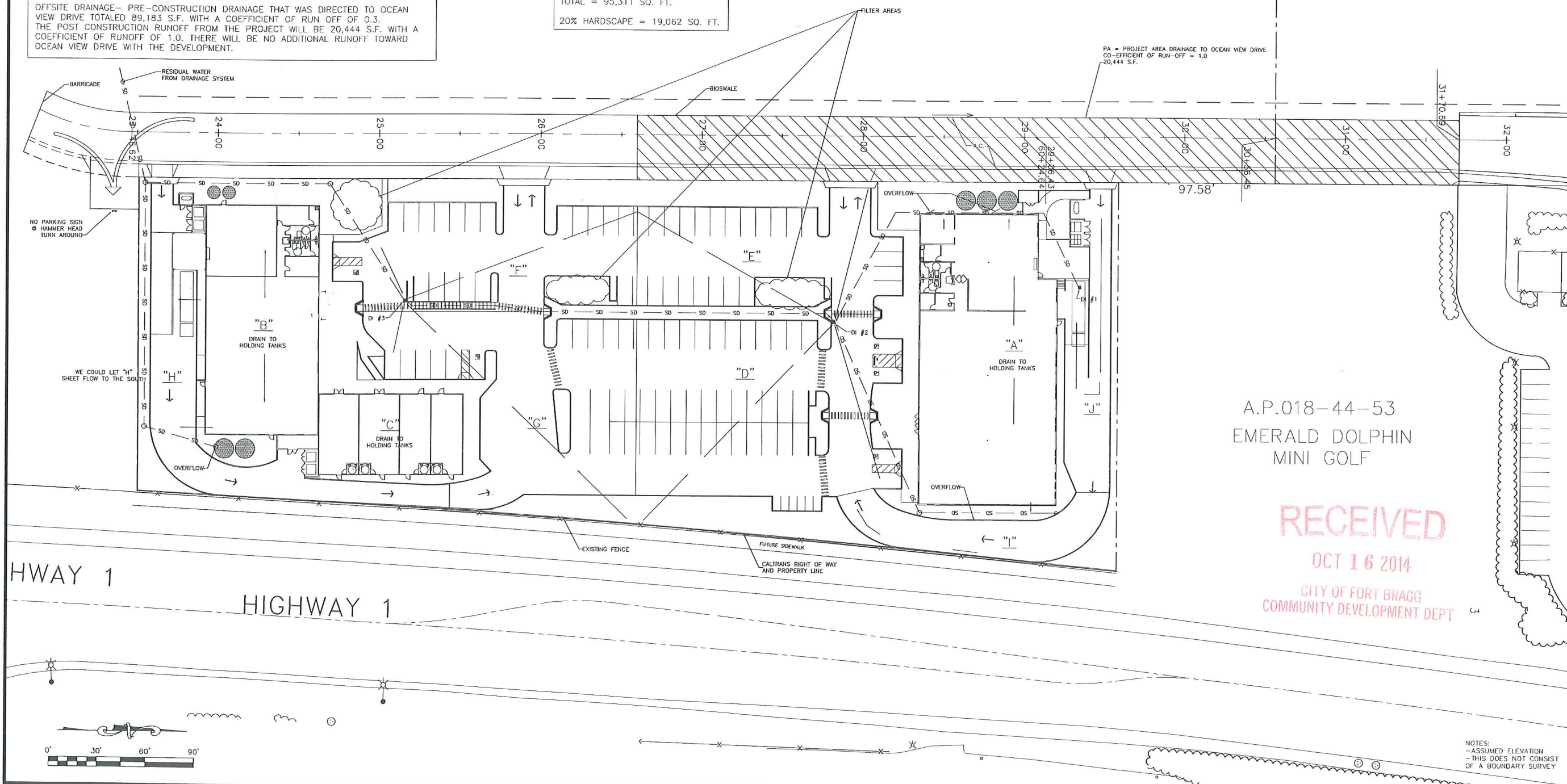
TOTAL = 95,311 SQ. FT.

20% HARDSCAPE = 19,062 SQ. FT.

## 85% STORM CALCULATIONS

A.C. AREA	SIZE (S.F.)	85% VOLUME GALLONS/HR.	FILTER AREA NEEDED S.F.*
D	16,889	328.98	88.91
E	9,044	176.17	47.61
F	10,464	203.83	55.09
G	13,413	261.27	70.61
H	7,388	143.91	38.94
I	3,730	72.66	19.64
J	4,872	94.90	25.65

\*DESIGN BASED UPON 3.7 GALLONS/HR./S.F.



A.P.018-44-50  
HAHN  
40,000 SQ. FT.

A.P.018-44-53  
EMERALD DOLPHIN  
MINI GOLF

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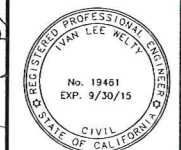
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HARE CREEK DRAINAGE AREAS  
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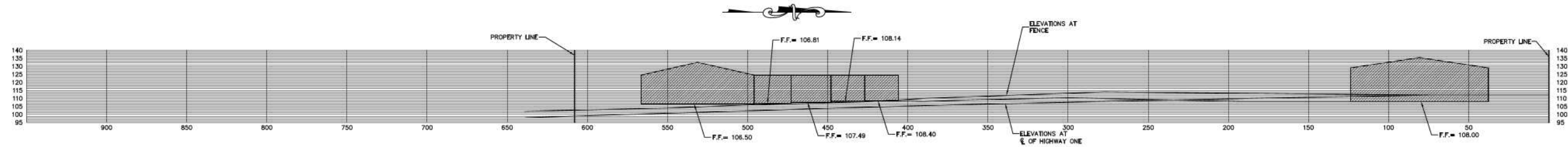


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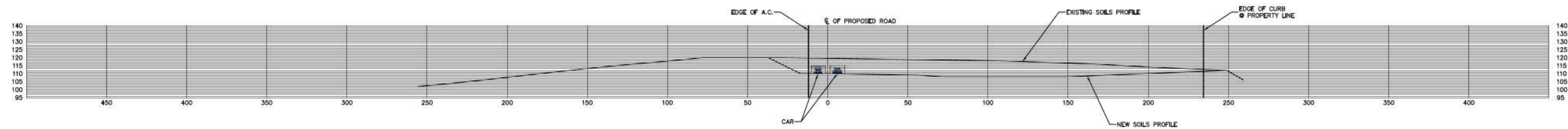
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PROFILE LOOKING WEST FROM HIGHWAY ONE

1:30

1



SECTION @ STATION 25+77.23

1:30

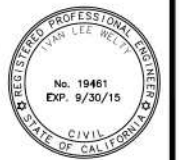
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G6

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