CEQA
MITIGATED NEGATIVE DECLARATION

CITY OF EUREKA

PROJECT TITLE: Lundbar Hills, Unit No. 6

PROJECT APPLICANT: Fred H. Lundblade, Jr, and C. Robert & Patricia B. Barnum

CASE NO: SD-03-003/LLA-03-003/VAR-03-013/C-06-008

PROJECT LOCATION: Lundbar Hills Subdivision, at the end of Lundblade Drive; APN 301-031-039; 301-281-038

ZONING & GENERAL PLAN DESIGNATION: One-Family Residential; Low Density Residential

PROJECT DESCRIPTION: The applicants have submitted a Vesting Tentative Map for a major subdivision of 19.2 acres, resulting in 56 parcels and a remainder. The lots range in size from 6,500 square feet to 49,400 square feet. The lots will be served by the extension of Lundblade Drive and Dickson Drive. Lundblade Drive will be extended and improved to the south boundary line of the property to provide access to adjacent parcels and eventually a second access for Lundbar Hills.

Approximately 12.3 acres of previously logged land will be cleared for roadway construction and building site preparation. Approximately 250,000 board feet of timber will be removed. The applicants are also requesting approval of a conditional use permit to allow the timber harvesting prior to issuance of building and/or grading permits.

The applicants have decided to request approval of a vesting tentative map in order to secure development rights as provided in Section 66498.1 of the Government Code. Under current market conditions the subdivision should be fully developed with residences over a time span of a few years. A significant downturn in the economy, however, could delay full development by several years. A vesting tentative map will set development conditions that can be relied on if development is delayed for several years.

The remainder parcel includes land that is hillside, sloping down from the subdivision property, and nearly level land that is a valley floor and cannot be accessed from the subdivision without difficulty. Access from Fairway Drive is physically possible, however, it would require access across adjacent land owned by one or more of the applicants. If the remainder is ever to be subdivided or developed with a residence, access would be from Fairway Drive.

The subdivision requires a variance to allow Lot 170 to have a reduced lot depth of approx. 80-feet where the Code requires 100 feet; the parcel size of 7,826 sq. ft. will exceed the

minimum lot size of 6,000 sq. ft. In addition, the project includes a lot line adjustment to take approx. 4660 sq. ft. from APN 301-031-039 and add it to 301-281-038.

The following reports and/or plans were used in the analysis of this project:

- Preliminary Drainage Study & Hydrology Report, Forsyth Engineering, July 2003
- R-1 Preliminary Engineering Geologic and Geotechnical Investigation, SHN, August 2002
- Traffic Report, WB Sweet, March 2003 – Updated July 2005
- Preliminary Title Report, Humboldt Land Title Company, May 2003

LEAD AGENCY/CONTACT: City of Eureka, Community Development Department; Sidnie L. Olson, AICP, Senior Planner; 531 K Street, Eureka, CA 95501-1165; phone: (707) 441-4265; fax: (707) 441-4202; e-mail: solson@ci.eureka.ca.gov

DATE OF PROJECT APPLICATION: July 15, 2003

DATE OF PROJECT APPROVAL: September 11, 2006

FINDINGS: This is to advise that on September 11, 2006 the Planning Commission of the City of Eureka, as the Lead Agency, approved the project described above, and made the following determinations and findings regarding the project.

1. The Planning Commission found that the proposed project will not have a significant effect on the environment.
2. A Mitigated Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. The Planning Commission found that the Mitigated Negative Declaration was prepared pursuant to the provisions of CEQA.
4. The decision of the Planning Commission to adopt the Mitigated Negative Declaration was based on the whole record before it (including the initial study and any comments received).
5. The Planning Commission found that the Mitigated Negative Declaration reflects the City of Eureka's independent judgment and analysis.
6. Mitigation measures were made a condition of project approval.
7. A Statement of Overriding Considerations was not adopted for this project.
8. Findings were not made pursuant to the provisions of CEQA (CCR §15091)
9. The Planning Commission adopted a program for reporting on or monitoring the changes which it either required in the project or made a condition of approval to mitigate or avoid significant environmental effects.
10. The Planning Commission found that the project site is not within two nautical miles of a public airport or public use airport, and they determined that the project will not

result in a safety hazard or noise problem for persons using the airport or for persons residing or working in the project area.

This is to certify the City of Eureka, Community Development Department, is the custodian of the documents or other material which constitute the record of proceedings upon which the Planning Commission's decision was based; and that the Mitigated Negative Declaration and the record of project approval are available to the general public for review during regular office hours at the City of Eureka, Community Development Department, third floor, 531 K Street, Eureka, CA 95501.

Sidnie L. Olson, AICP
Senior Planner
City of Eureka

September 11, 2006
Date

CEQA
INITIAL STUDY

CITY OF EUREKA

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The following reports and/or plans were used in the analysis of this project and are attached to this initial study:

- Wetland Investigation and Potential Impact Assessment on Lundbar Hills Subdivision, Eel

River Sciences, July, 2005
- R-1 Preliminary Engineering Geologic and Geotechnical Investigation, SHN, August 2002
- Preliminary Drainage Study & Hydrology Report, Forsyth Engineering, July 2003
- Lundbar Hills - Unit 6 Project Information, Kelly-O'Hern Associates, revised March, 2005
- Traffic Study for Lundbar Hills Southwood Subdivision, Unit 6, WB Sweet, January, 2006

APPLICATION DATE: July 15, 2003

LEAD AGENCY/CONTACT: City of Eureka, Community Development Department; Sidnie L. Olson, AICP, Senior Planner; 531 K Street, Eureka, CA 95501-1165; phone: (707) 441-4265; fax: (707) 441-4202; e-mail: solson@ci.eureka.ca.gov

SURROUNDING LAND USES AND SETTING: The City of Eureka is a charter city located on Humboldt Bay, approximately 300 miles north of San Francisco and 100 miles south of the Oregon border. Initially founded in the spring of 1850, the City of Eureka was incorporated through a special act of the state legislature on April 18, 1856. The community was reincorporated as a City on February 19, 1874 and received a charter on February 8, 1895. As the county seat for the 572 square mile Humboldt County, Eureka is the center of business and government; the major industries include agriculture, fishing, and tourism. The average July maximum temperature is 61.6°F and the average January maximum temperature is 54.3°F. The average July minimum temperature is 52.3°F and the average January minimum temperature is 41.5°F. The average annual precipitation is 39.0 inches; the average annual snowfall is 0.3 inches.

The project site is located on a broad ridge running in a generally east–west direction near the southern boundary of the City of Eureka. This ridge runs westerly to Fairway Drive through the neighborhood of Lundbar Hills. The ridge runs southerly through timberland to Ridgewood Drive in Cutten.

Land to the west of the subject property is the neighborhood of Lundbar Hills, developed with single family residences. Land to the north and east is relatively steep timberland. Land to the south is undeveloped timberland and recently cutover land.

OTHER PUBLIC AGENCIES WHOSE APPROVAL IS, OR MAY BE REQUIRED (e.g. permits, financing approval, or participation agreement.): North Coast Air Quality Management District (NCAQMD) and Regional Water Quality Control Board (RWQCB).

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED: As discussed and analyzed in this Initial Study, the project issues checked below may have a **Significant** or **Potentially Significant Impact**:

☐ Aesthetic/Visual	☐ Flood Plain/Flooding	☐ Schools/Universities	☐ Water Quality
☐ Agricultural Land	☐ Forest Land/Fire Hazard	☐ Septic Systems	☐ Water Supply/Groundwater
☐ Air Quality	☐ Geologic/Seismic	☐ Sewer Capacity	☐ Wetland/Riparian
☐ Archeological/Historical	☐ Minerals	☐ Soil Erosion/Compacting/Grading	
☐ Coastal Zone	☐ Noise	☐ Solid Waste	☐ Growth Inducement
☐ Drainage/Absorption	☐ Population/Housing Balance	☐ Toxic/Hazardous	☐ Land Use
☐ Economics/Jobs	☐ Public Services/Facilities	☐ Traffic Circulation	☐ Cumulative Effects
☐ Fiscal	☐ Recreation/Parks	☐ Vegetation	

DETERMINATION: On the basis of this initial evaluation:

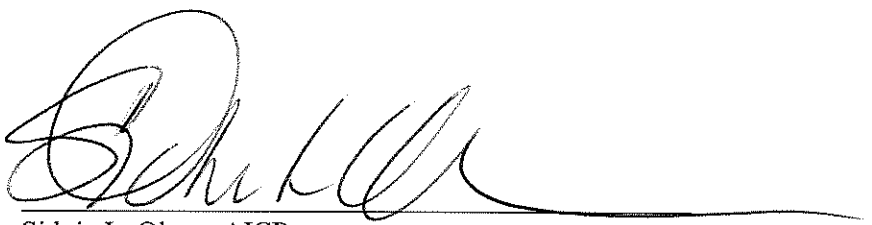
- ☐ I find that the proposed project **could not** have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared.

- ☑ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A **MITIGATED NEGATIVE DECLARATION** will be prepared.

- ☐ I find that the proposed project **may** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.

- ☐ I find that the proposed project **may** have a "potentially significant impact" or 'potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only those effects that remain to be addressed.

- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier **EIR** or **NEGATIVE DECLARATION** pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier **EIR** or **NEGATIVE DECLARATION**, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



August 10, 2006

Sidnie L. Olson, AICP
Senior Planner, City of Eureka

Date

SUMMARY OF POTENTIAL PROJECT IMPACTS AND RECOMMENDED MITIGATION MEASURES: Below is a table that summarizes the impact potential for each category of impacts discussed and analyzed in this Initial Study and a list of mitigation measures that will be recommended as conditions of project approval.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
I. Aesthetics		✓		
II. Agricultural Resources				✓
III. Air Quality		✓		
IV. Biological		✓		
V. Cultural		✓		
VI. Geology and Soils		✓		
VII. Hazards and Hazardous Materials		✓		
VIII. Hydrology and Water Quality		✓		
IX. Land Use and Planning			✓	
X. Mineral Resources			✓	
XI. Noise		✓		
XII. Population			✓	
XIII. Public Services		✓		
XIV. Recreation			✓	
XV. Transportation and Traffic		✓		
XVI. Utilities & Service Systems		✓		
XVII. Mandatory Findings of Significance		✓		

I. Aesthetics

MITIGATION MEASURE NO. 1. Any exterior lighting, other than street lights on public roads, shall be low, fully shielded, directional lighting that will focus light on the project parcel, and specifically away from the adjacent gulch greenway, neighboring residences, and roadways, to minimize off-site light and glare effects to the satisfaction of the City of Eureka.

II. Agricultural Resources

none

III. Air Quality

MITIGATION MEASURE NO. 2. The applicant, at all times, shall comply with Air Quality Regulation 1, Chapter IV to the satisfaction of the North Coast Unified Air Quality Management District (NCUAQMD). This will require, but may not be limited to: (1) covering open bodied trucks when used for transporting materials likely to give rise to airborne dust; and (2) the use of water or chemicals for control of dust in the demolition or construction operations, the grading of roads or the clearing of land. Burning will be done at times when winds will carry smoke away from residences and are consistent with the NCUAQMD guidelines. Brush and slash should be chipped for spreading on-site or removal.

IV. Biological Resources

MITIGATION MEASURE NO. 3. No disturbance to wetland areas at the bottom of the drainage shall occur.

MITIGATION MEASURE NO. 4. Construction of the Lundblade Drive extension road and detention facility will include sediment control measures (rock energy dissipaters, rock check dams, etc.) that will provide a more stable and functioning gulch and ensure protection from sedimentation to downstream wetlands.

V. Cultural Resources

MITIGATION MEASURE NO. 5. If any area of cultural deposits is discovered during the course of the project, as required by law, all work shall cease and a qualified cultural resources specialist shall be contacted to analyze the significance of the find and formulate further mitigation (e.g. project relocation, excavation plan, protective cover). And, pursuant to the California Health and Safety Code Section 7050.5, if human remains are encountered, all work must cease and the County Coroner contacted.

VI. Geology and Soils

MITIGATION MEASURE. NO. 6. All activities of this project site shall comply with the recommendation of the Preliminary Engineering Geologic and Geotechnical Investigation report prepared by SHN Consulting Engineers and Geologists, Inc, August 2002. These include activities associated with: (1) site preparation and grading, (2) structural foundations, (3) slabs-on-grade, (4) retaining walls, (5) sub-drains, and (6) drainage and erosion. If a new or revised Engineering Geologic and Geotechnical Investigation report is prepared, the recommendations of the new or revised report shall be followed. This mitigation measure shall be completed to the satisfaction of the City.

VII. Hazards and Hazardous Materials

MITIGATION MEASURE NO. 7. During project construction, if there is any evidence that indicates contaminated soils are present on the site, either from visual observations or odors indicative of regulated substances, the applicant shall be responsible for performing soil sample analyses. The findings of the survey shall be submitted, as applicable, to the RWQCB, DTSC, and any other appropriate regulatory agencies. The applicant shall comply at all times with the requirements and regulations of the RWQCB, DTSC, and other agencies with regard to the handling, transport, and disposal of hazardous materials such as contaminated soils to the satisfaction of the applicable agencies.

VIII. Hydrology and Water Quality

MITIGATION MEASURE NO. 8. To mitigate potential impacts to water quality and waste discharge requirements to less than a significant effect, applicant shall secure a Storm Water and Pollution Prevention Plan (SWPPP), prior to the commencement of any construction activities. The applicant shall provide a copy to the City Community Development Department.

MITIGATION MEASURE NO. 9. To mitigate the potential for storm water to carry additional pollutants from the project site, good housekeeping including maintenance and cleaning of the construction staging area(s) shall be on a regular basis. No debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete washings, oil or petroleum products, or other organic or earthen material from construction operations shall be allowed to enter or be placed where it can enter the Martin Slough. All erosion control measures and handling of petroleum products will be followed as specified in the SWPPP. Best Management Practices (BMP)'s will be implemented during all phases of construction.

IX. Land Use and Planning

none

X. Mineral Resources

none

XI. Noise

MITIGATION MEASURE NO. 10. Hours of construction activities shall be limited to daylight hours, generally from 8:00 a.m. to 5:00 p.m., Monday through Saturday. The hours of construction may be allowed to be increased with prior approval from the City Community Development Director based on an expressed need by the contractor.

XII. Population

none

XIII. Public Services

MITIGATION MEASURE NO. 11.
Installation of waterlines to the south property line sized to provide for services for the future extension of Lundblade Drive shall be constructed to the satisfaction of the City.

MITIGATION MEASURE NO. 12.
Continuation of Lundblade Drive to the south property line, constructed at the same width as previous units of Lundbar Hills shall be constructed.

MITIGATION MEASURE NO. 13.
Two additional fire hydrants, over the number specified by the Fire Marshall, shall be installed to the satisfaction of the City.

MITIGATION MEASURE NO. 14.
Each home shall have an NFPA 13D compliant automatic fire sprinkler system for the house and garage, installed to the satisfaction of the City Fire Department.

MITIGATION MEASURE NO. 15.
All construction will be provided with a Class A rated roof and roof assembly.

MITIGATION MEASURE NO. 16.
All construction shall have non-combustible siding.

XIV. Recreation

none

XV. Transportation and Traffic

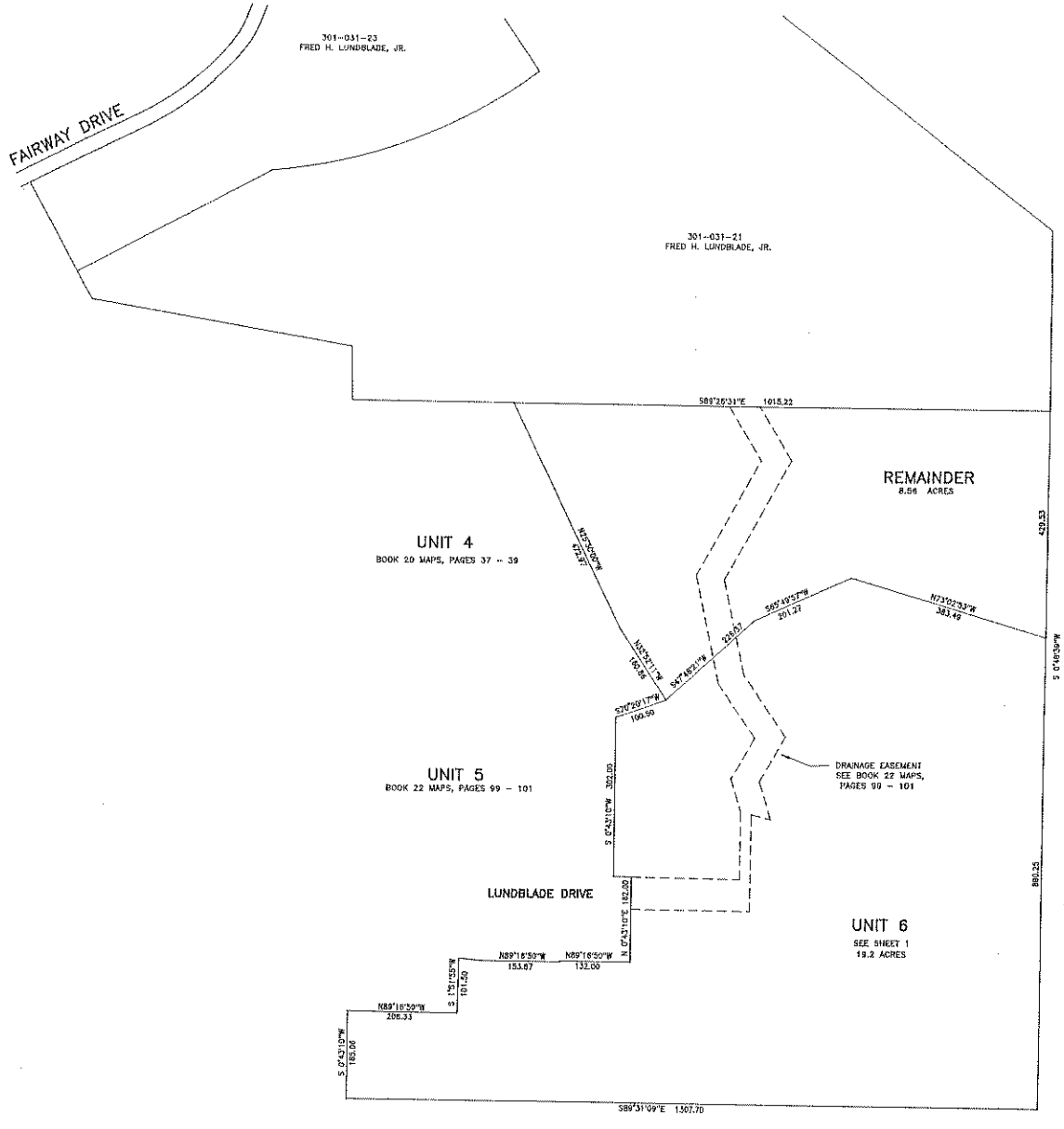
MITIGATION MEASURE NO. 17.
Stop signs shall be installed for local streets at intersections with Lundblade Drive. Right-of-way for the new segment of Lundblade Drive shall be 62 feet, and rights-of- way for new local streets shall be 50 feet. Right-of-way for Lundblade Drive shall extend to the easterly limit of Unit 6.

XVI. Utilities and Service Systems

MITIGATION MEASURE NO. 18.
The applicant shall assure that no construction materials, debris, or waste be placed or stored where it may be subject to erosion and dispersion; Any and all debris resulting from construction activities shall be immediately removed following completion of construction; concrete trucks and tools used for construction be rinsed at the specified wash-out area(s); and staging and storage of construction machinery and storage of debris on any public street rights-of-way will require an encroachment permit.

MITIGATION MEASURE NO. 19.

For potable water supply, if needed, the applicant will either add an additional booster pump or up-size the existing one in order to provide the minimum *gpm* and *psi* to the new lots to the satisfaction of the City Public Works and Engineering Departments.



VESTING TENTATIVE MAP
LUNDBAR HILLS SOUTHWOOD SUBDIVISION – UNIT 6

IN

SE 1/4 SECTION 3 T4N, R1W, H.M.
JANUARY, 2003 SCALE 1" = 100'

HUMBOLDT COUNTY
STATE OF CALIFORNIA

KELLY-O'HERN ASSOCIATES
EUREKA, CALIFORNIA

VESTING TENTATIVE MAP
LUNDBAR HILLS SOUTHWOOD SUBDIVISION – UNIT 6

IN

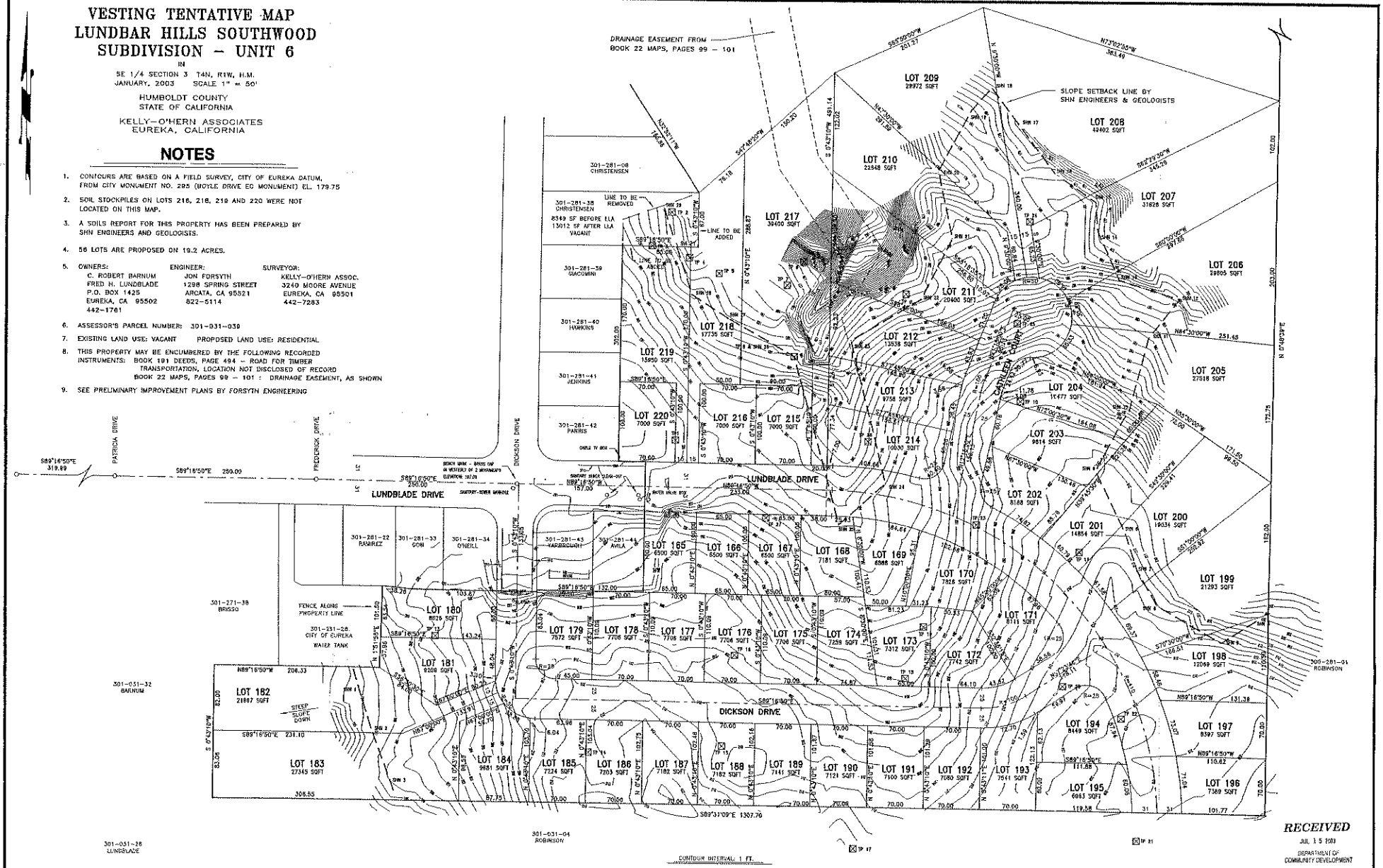
SE 1/4 SECTION 3 T4N, R1W, H.M.
JANUARY, 2003 SCALE 1" = 50'

HUMBOLDT COUNTY
STATE OF CALIFORNIA

KELLY–O'HERN ASSOCIATES
EUREKA, CALIFORNIA

NOTES

1. CONTOURS ARE BASED ON A FIELD SURVEY, CITY OF EUREKA DATUM, FROM CITY MONUMENT NO. 285 (BOYLE DRIVE EC MONUMENT) EL. 179.75
2. SOIL STOCKPILES ON LOTS 216, 218, 219 AND 220 WERE NOT LOCATED ON THIS MAP.
3. A SOILS REPORT FOR THIS PROPERTY HAS BEEN PREPARED BY SHN ENGINEERS AND GEOLOGISTS.
4. 56 LOTS ARE PROPOSED ON 19.2 ACRES.
5. OWNERS: C. ROBERT BARNUM, FRED H. LUNDBLADE, P.O. BOX 1425, EUREKA, CA 95502, 442–1761
   ENGINEER: JON FORSYTH, 1298 SPRING STREET, ARCATA, CA 95521, 822–5114
   SURVEYOR: KELLY–O'HERN ASSOC., 3240 MOORE AVENUE, EUREKA, CA 95501, 442–7283
6. ASSESSOR'S PARCEL NUMBER: 301–031–039
7. EXISTING LAND USE: VACANT PROPOSED LAND USE: RESIDENTIAL
8. THIS PROPERTY MAY BE ENCUMBERED BY THE FOLLOWING RECORDED INSTRUMENTS: BOOK 191 DEEDS, PAGE 494 – ROAD FOR TIMBER TRANSPORTATION, LOCATION NOT DISCLOSED OF RECORD
   BOOK 22 MAPS, PAGES 99 – 101 : DRAINAGE EASEMENT, AS SHOWN
9. SEE PRELIMINARY IMPROVEMENT PLANS BY FORSYTH ENGINEERING



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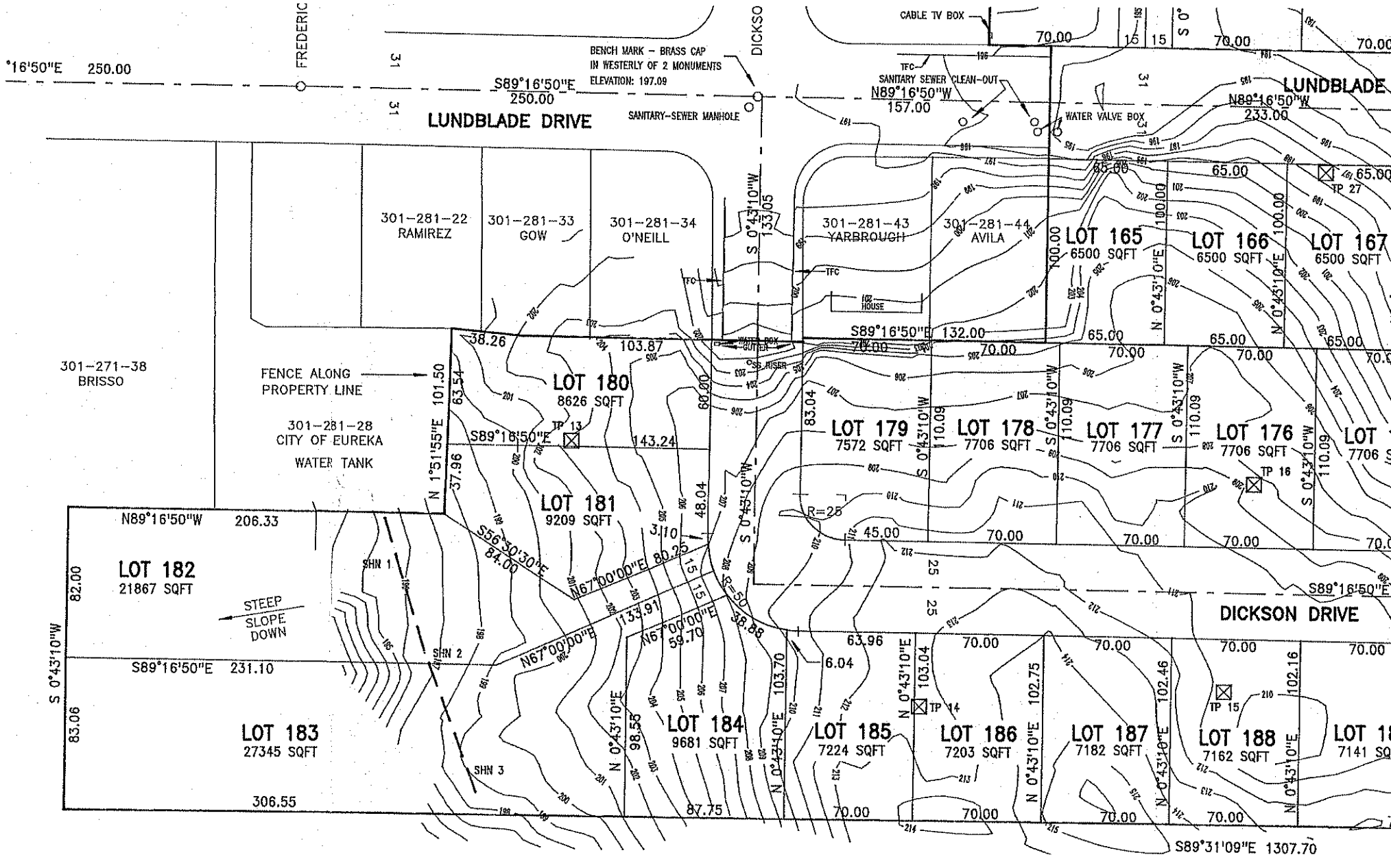
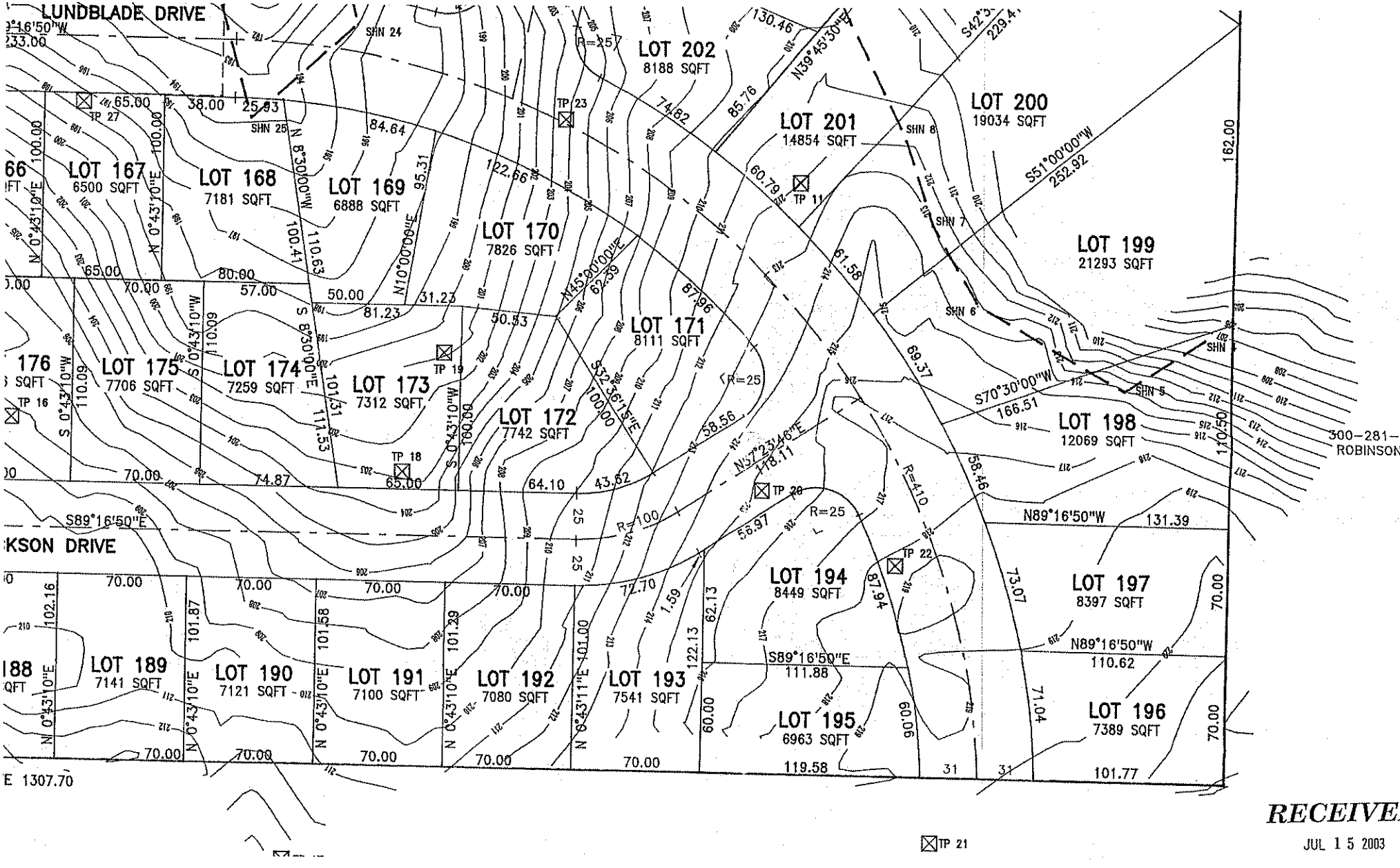
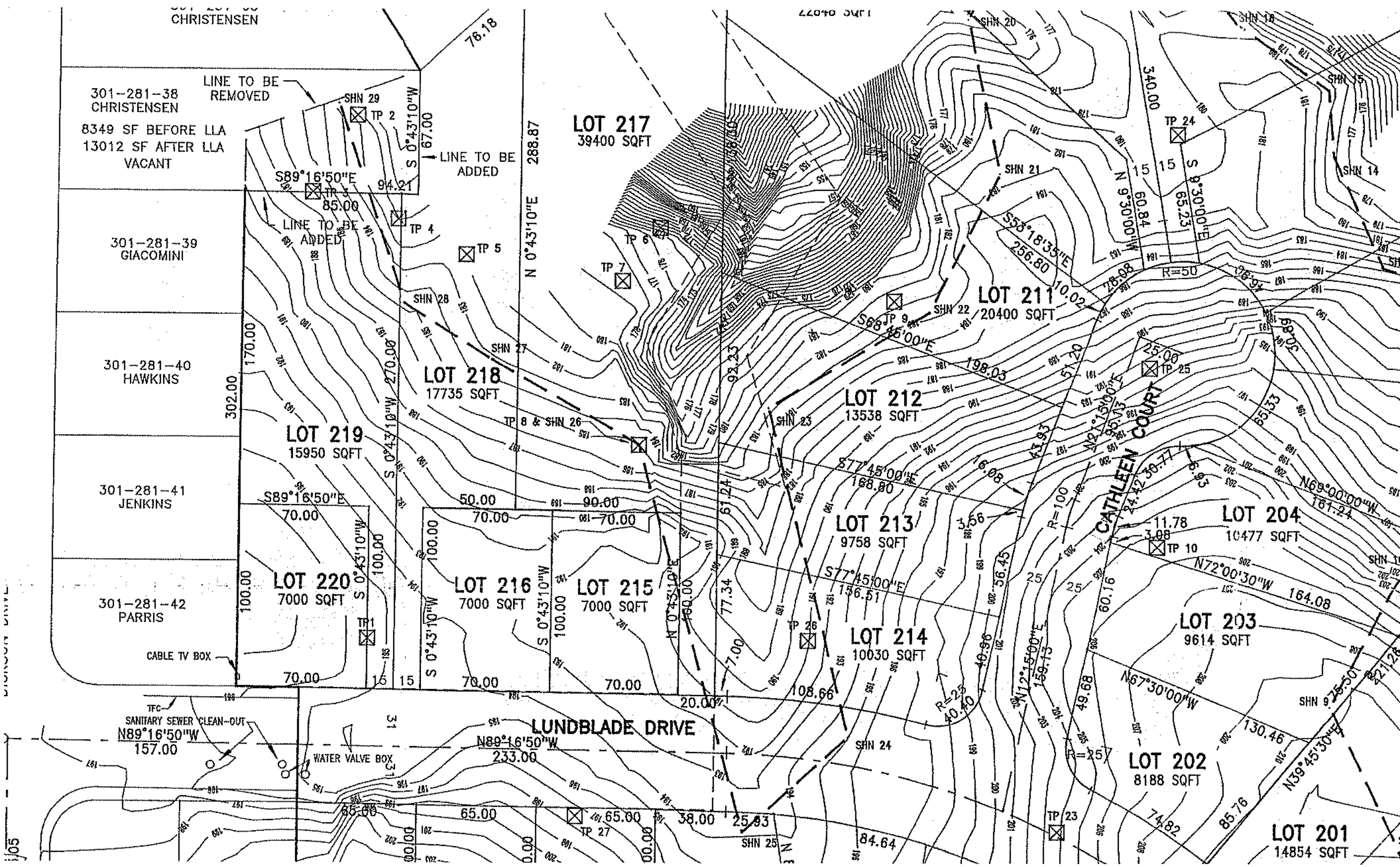
DEPARTMENT OF COMMUNITY DEVELOPMENT


°16'50"E 250.00
FREDERIC
S89°16'50"E 250.00
BENCH MARK – BRASS CAP IN WESTERLY OF 2 MONUMENTS ELEVATION: 197.09
DICKSO
LUNDBLADE DRIVE
SANITARY-SEWER MANHOLE
CABLE TV BOX
TFC
SANITARY SEWER CLEAN-OUT
N89°16'50"W 157.00
WATER VALVE BOX
LUNDBLADE
N89°16'50"W 233.00
301-281-22 RAMIREZ
301-281-33 GOW
301-281-34 O'NEILL
301-281-43 YARBROUGH
301-281-44 AVILA
LOT 165 6500 SQFT
LOT 166 6500 SQFT
LOT 167 6500 SQFT
TP 27
HOUSE
S 0°43'10"W 133.05
S89°16'50"E 132.00
WATER BOX OUTER
CSB RISER
301-271-38 BRISSO
FENCE ALONG PROPERTY LINE
301-281-28 CITY OF EUREKA WATER TANK
LOT 180 8626 SQFT
TP 13
S89°16'50"E 143.24
N 1°51'55"E 101.50
37.96
63.54
38.26
103.87
68.00
LOT 179 7572 SQFT
LOT 178 7706 SQFT
LOT 177 7706 SQFT
LOT 176 7706 SQFT
TP 16
LOT 181 9209 SQFT
N89°16'50"W 206.33
S56°30'30"E 84.00
N67°00'00"E 80.25
N67°00'00"E 133.91
N67°00'00"E 59.70
S=50 38.88
R=25
45.00
DICKSON DRIVE
S89°16'50"E
LOT 182 21867 SQFT
STEEP SLOPE DOWN
SHN 1
SHN 2
SHN 3
S89°16'50"E 231.10
S 0°43'10"W 82.00
S 0°43'10"W 83.06
LOT 183 27345 SQFT
306.55
LOT 184 9681 SQFT
LOT 185 7224 SQFT
LOT 186 7203 SQFT
LOT 187 7182 SQFT
LOT 188 7162 SQFT
TP 14
TP 15
87.75
98.55
103.70
6.04
63.96
S89°31'09"E 1307.70




CHRISTENSEN
301-281-38
CHRISTENSEN
8349 SF BEFORE LLA
13012 SF AFTER LLA
VACANT
LINE TO BE REMOVED
LINE TO BE ADDED
301-281-39
GIACOMINI
301-281-40
HAWKINS
301-281-41
JENKINS
301-281-42
PARRIS
CABLE TV BOX
SANITARY SEWER CLEAN-OUT
WATER VALVE BOX
LOT 217
39400 SQFT
LOT 218
17735 SQFT
LOT 219
15950 SQFT
LOT 220
7000 SQFT
LOT 216
7000 SQFT
LOT 215
7000 SQFT
LOT 211
20400 SQFT
LOT 212
13538 SQFT
LOT 213
9758 SQFT
LOT 214
10030 SQFT
LOT 204
10477 SQFT
LOT 203
9614 SQFT
LOT 202
8188 SQFT
LOT 201
14854 SQFT
LUNDBLADE DRIVE
CATHLEEN COURT
N89°16'50"W
157.00
N89°16'50"W
233.00
S89°16'50"E
85.00
S89°16'50"E
N 0°43'10"E
288.87
S 0°43'10"W
270.00
S 0°43'10"W
67.00
S68°45'00"E
198.03
S58°18'35"E
256.80
S77°45'00"E
168.80
S77°45'00"E
156.51
N 9°30'00"W
60.84
S 9°30'00"E
65.23
N69°00'00"W
161.24
N72°00'30"W
164.08
N67°30'00"W
N12°15'00"E
159.13
N39°45'30"E
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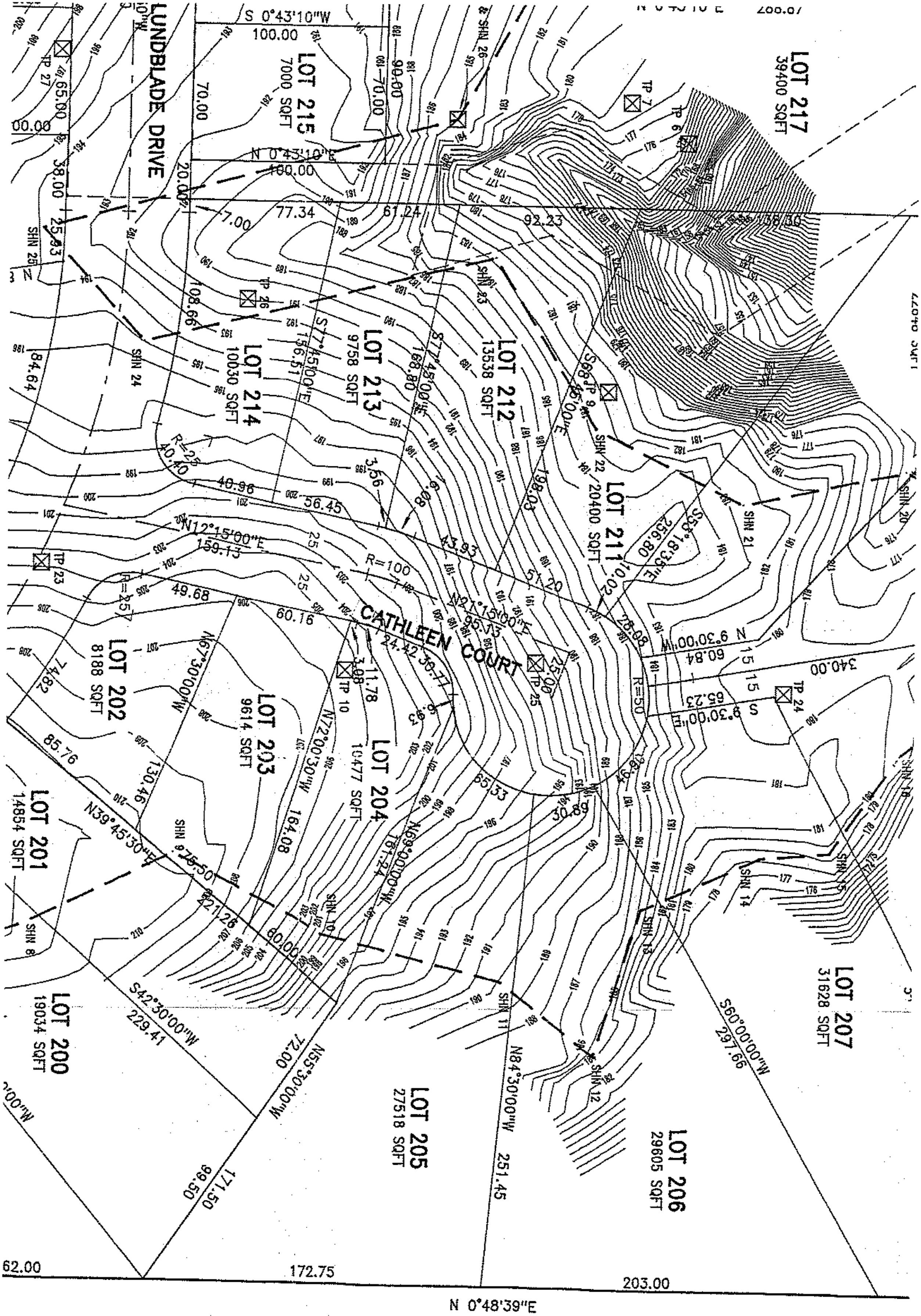
R=100
R=25


LUNDBLADE DRIVE
CATHLEEN COURT
LOT 200
19034 SQFT
LOT 201
14854 SQFT
LOT 202
8188 SQFT
LOT 203
9614 SQFT
LOT 204
10477 SQFT
LOT 205
27518 SQFT
LOT 206
29605 SQFT
LOT 207
31628 SQFT
LOT 211
20400 SQFT
LOT 212
13538 SQFT
LOT 213
9758 SQFT
LOT 214
10030 SQFT
LOT 215
7000 SQFT
LOT 217
39400 SQFT
S 0°43'10"W
100.00
N 0°43'10"E
100.00
N12°15'00"E
159.13
N 9°30'00"W
60.84
S 9°30'00"E
65.23
340.00
N67°30'00"W
N72°00'30"W
164.08
N69°00'00"W
161.24
N39°45'30"E
221.26
S42°30'00"W
229.41
N55°30'00"W
72.00
171.50
99.50
N84°30'00"W
251.45
S60°00'00"W
297.66
S77°45'00"E
156.51
S77°45'00"E
168.80
S68°45'00"E
S53°18'35"E
256.80
R=25
R=100
R=50
62.00
172.75
203.00
N 0°48'39"E

VESTING TENTATIVE MAP
LUNDBAR HILLS SOUTHWOOD SUBDIVISION – UNIT 6

IN

SE 1/4 SECTION 3 T4N, R1W, H.M.
JANUARY, 2003 SCALE 1" = 50'

HUMBOLDT COUNTY
STATE OF CALIFORNIA

KELLY–O'HERN ASSOCIATES
EUREKA, CALIFORNIA

RECEIVED
AUG 8 9 2003
DEPARTMENT OF COMMUNITY DEVELOPMENT

NOTES

A SOILS REPORT FOR THIS PROPERTY HAS BEEN PREPARED BY SHN ENGINEERS AND GEOLOGISTS.

56 LOTS ARE PROPOSED ON 19.2 ACRES.

OWNERS:	ENGINEER:	SURVEYOR:
C. ROBERT BARNUM	JON FORSYTH	KELLY–O'HERN ASSOC.
FRED H. LUNDBLADE	1295 SPRING STREET	3240 MOORE AVENUE
P.O. BOX 1425	ARCATA, CA 95521	EUREKA, CA 95501
EUREKA, CA 95502	822–5114	442–7283
442–1761		

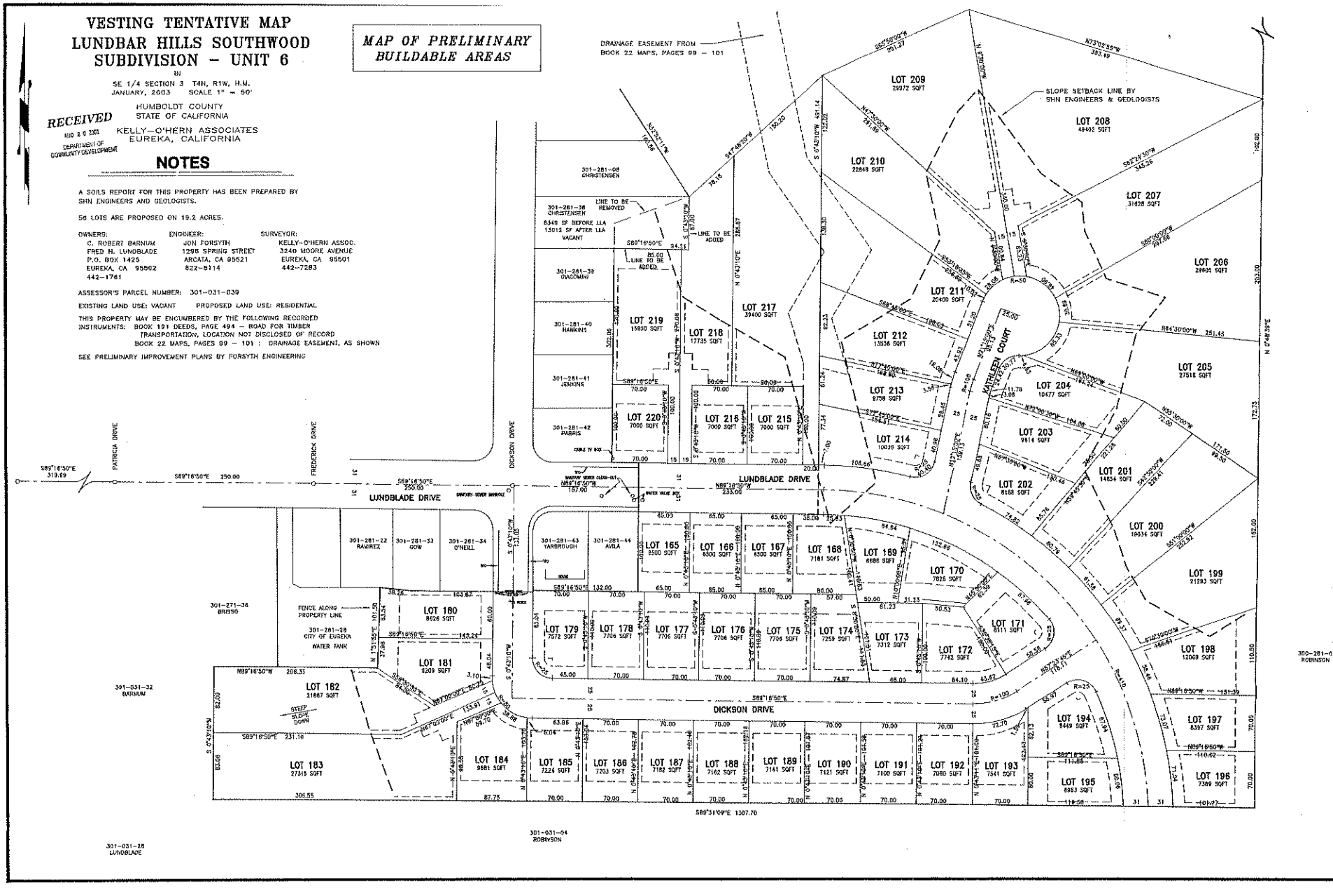
ASSESSOR'S PARCEL NUMBER: 301–031–039

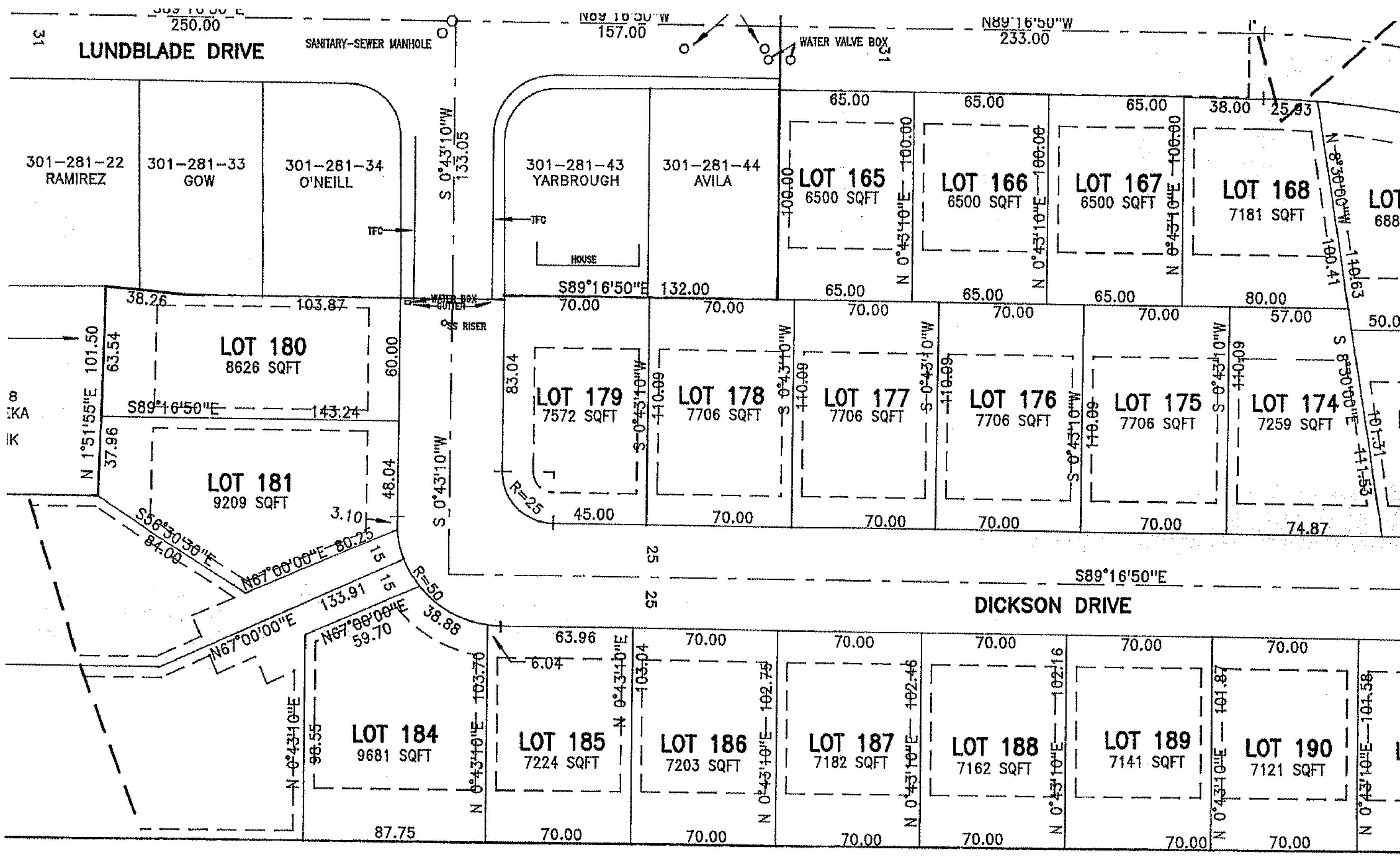
EXISTING LAND USE: VACANT PROPOSED LAND USE: RESIDENTIAL

THIS PROPERTY MAY BE ENCUMBERED BY THE FOLLOWING RECORDED INSTRUMENTS: BOOK 191 DEEDS, PAGE 494 – ROAD FOR TIMBER TRANSPORTATION, LOCATION NOT DISCLOSED OF RECORD
BOOK 22 MAPS, PAGES 99 – 101 : DRAINAGE EASEMENT, AS SHOWN

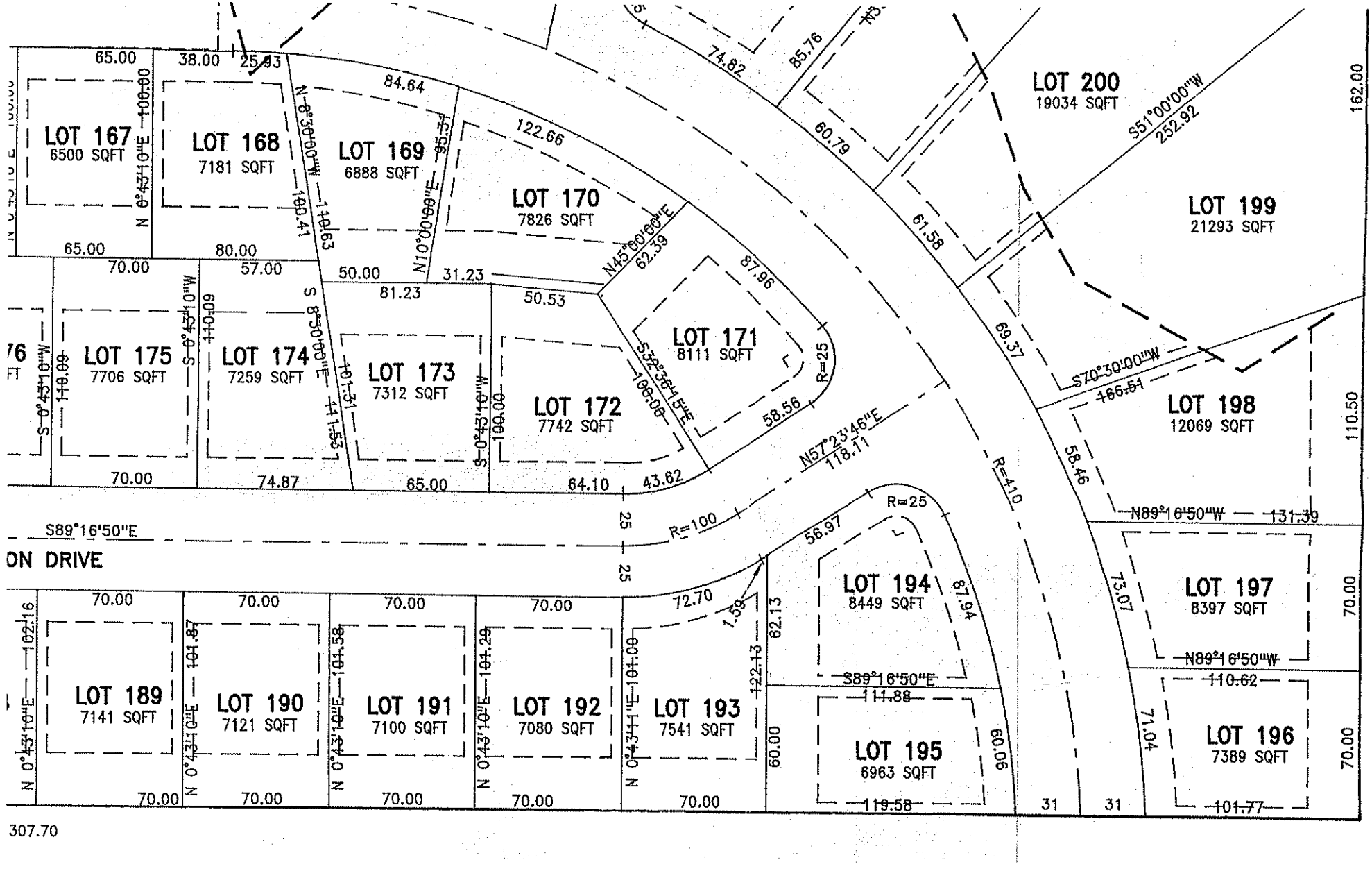
SEE PRELIMINARY IMPROVEMENT PLANS BY FORSYTH ENGINEERING

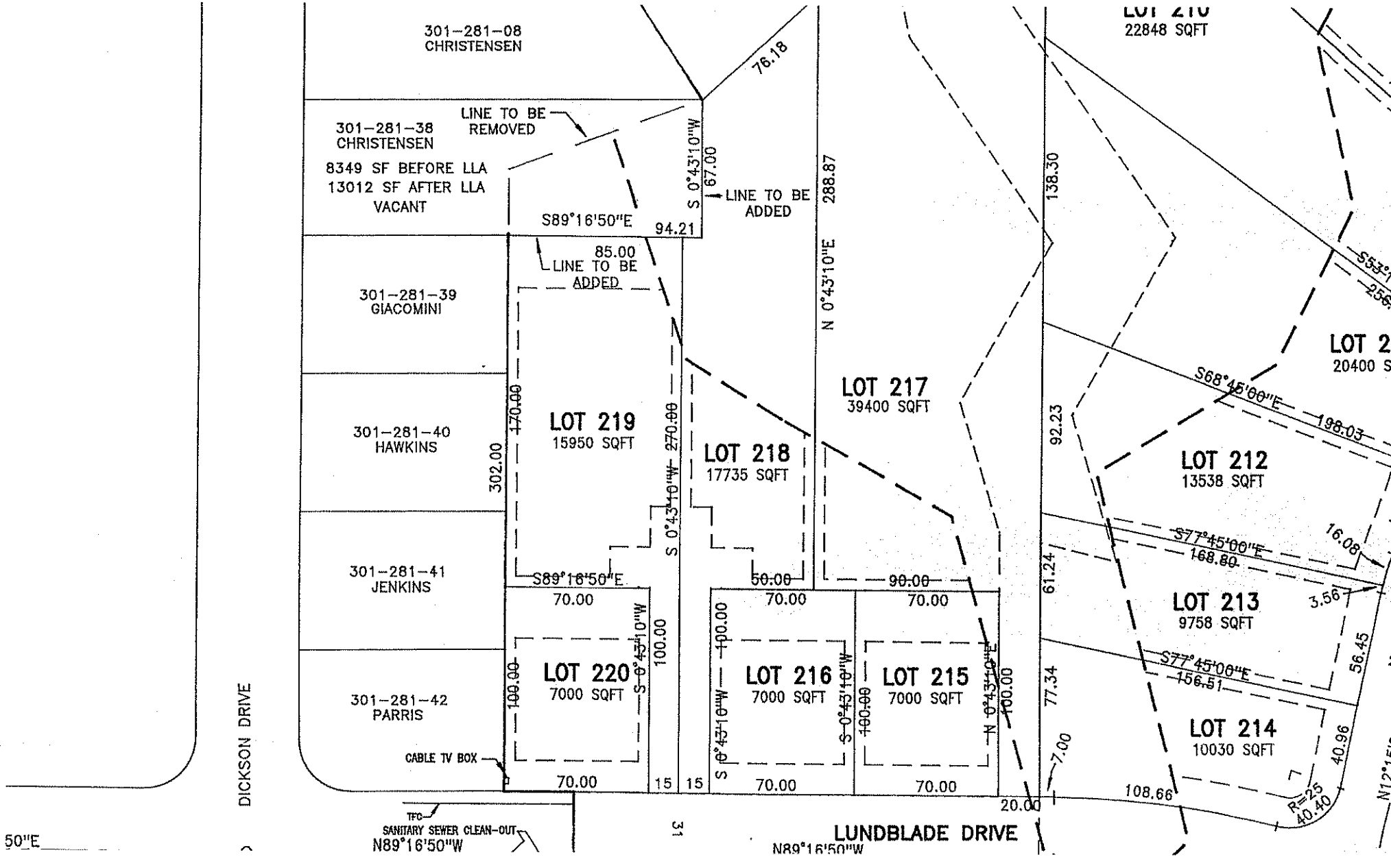
MAP OF PRELIMINARY BUILDABLE AREAS

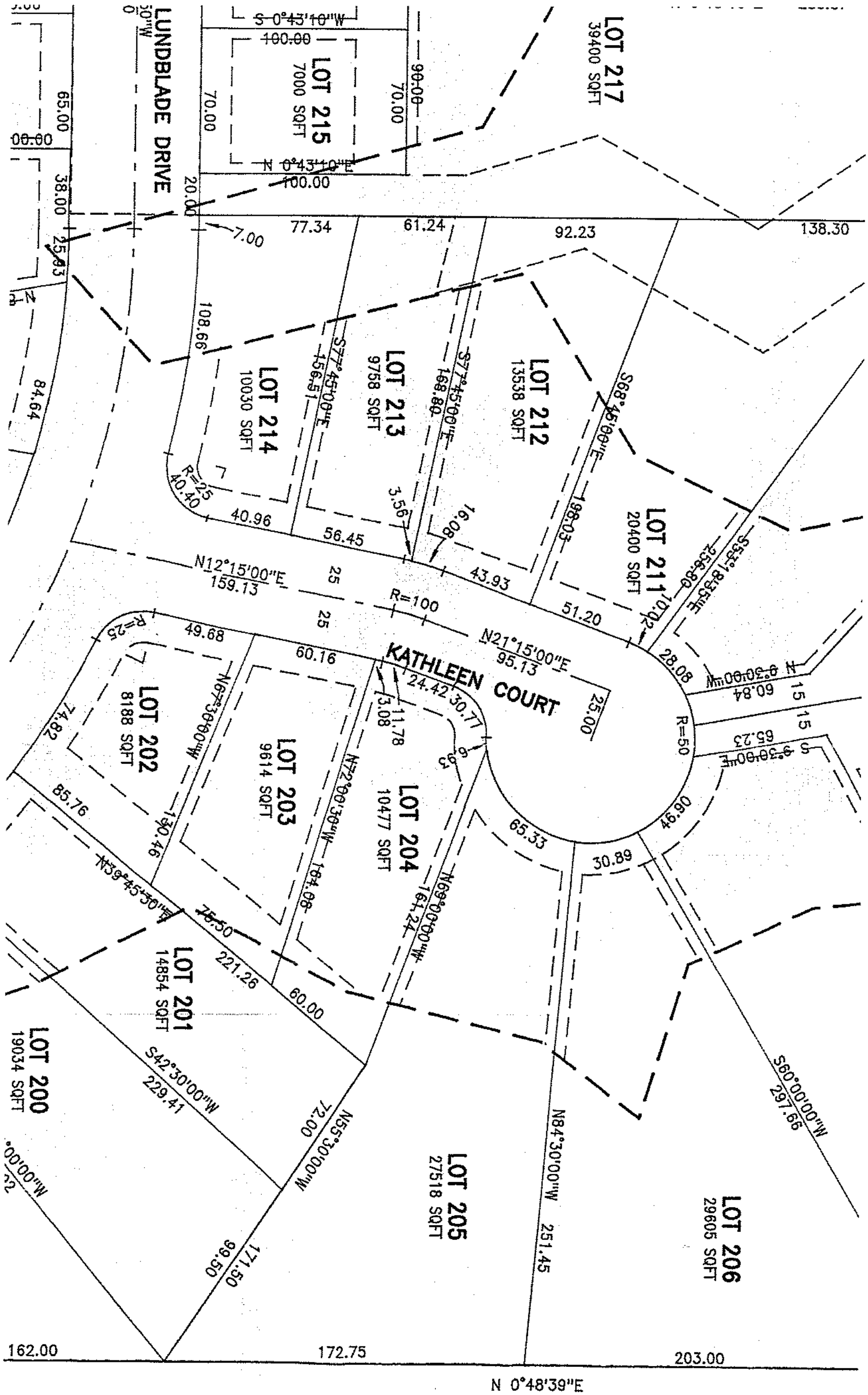




LUNDBLADE DRIVE
250.00
SANITARY-SEWER MANHOLE
N89°16'50"W
157.00
N89°16'50"W
233.00
WATER VALVE BOX
301-281-22
RAMIREZ
301-281-33
GOW
301-281-34
O'NEILL
301-281-43
YARBROUGH
301-281-44
AVILA
HOUSE
TFC
S 0°43'10"W
133.05
WATER BOX
GUTTER
SS RISER
S89°16'50"E 132.00
LOT 165
6500 SQFT
LOT 166
6500 SQFT
LOT 167
6500 SQFT
LOT 168
7181 SQFT
LOT 180
8626 SQFT
LOT 181
9209 SQFT
N 1°51'55"E 101.50
S56°30'30"E
84.00
N67°00'00"E 80.25
N67°00'00"E
133.91
N67°00'00"E
59.70
R=50
38.88
R=25
LOT 179
7572 SQFT
LOT 178
7706 SQFT
LOT 177
7706 SQFT
LOT 176
7706 SQFT
LOT 175
7706 SQFT
LOT 174
7259 SQFT
S 0°43'10"W
S89°16'50"E
DICKSON DRIVE
LOT 184
9681 SQFT
LOT 185
7224 SQFT
LOT 186
7203 SQFT
LOT 187
7182 SQFT
LOT 188
7162 SQFT
LOT 189
7141 SQFT
LOT 190
7121 SQFT
N 0°43'10"E
S 8°30'00"E
N 8°30'00"W


LOT 167
6500 SQFT
LOT 168
7181 SQFT
LOT 169
6888 SQFT
LOT 170
7826 SQFT
LOT 171
8111 SQFT
LOT 172
7742 SQFT
LOT 173
7312 SQFT
LOT 174
7259 SQFT
LOT 175
7706 SQFT
LOT 200
19034 SQFT
LOT 199
21293 SQFT
LOT 198
12069 SQFT
LOT 197
8397 SQFT
LOT 196
7389 SQFT
LOT 195
6963 SQFT
LOT 194
8449 SQFT
LOT 193
7541 SQFT
LOT 192
7080 SQFT
LOT 191
7100 SQFT
LOT 190
7121 SQFT
LOT 189
7141 SQFT
S89°16'50"E
ON DRIVE
R=100
R=410
R=25
N57°23'46"E
118.11
N89°16'50"W
131.39
S70°30'00"W
166.51
S51°00'00"W
252.92
N45°00'00"E
62.39
S32°38'15"E
100.00
74.82
85.76
60.79
61.58
69.37
87.96
58.56
58.46
56.97
87.94
72.70
1.59
62.13
122.13
73.07
71.04
110.62
111.88
119.58
101.77
162.00
110.50
307.70


301-281-08
CHRISTENSEN
76.18
LINE TO BE
REMOVED
301-281-38
CHRISTENSEN
8349 SF BEFORE LLA
13012 SF AFTER LLA
VACANT
S 0°43'10"W
67.00
LINE TO BE
ADDED
S89°16'50"E
94.21
85.00
LINE TO BE
ADDED
N 0°43'10"E
288.87
138.30
LOT 22
22848 SQFT
301-281-39
GIACOMINI
301-281-40
HAWKINS
302.00
170.00
LOT 219
15950 SQFT
270.00
S 0°43'10"W
LOT 218
17735 SQFT
LOT 217
39400 SQFT
92.23
LOT 2
20400 S
S68°45'00"E
198.03
LOT 212
13538 SQFT
301-281-41
JENKINS
S89°16'50"E
70.00
50.00
70.00
90.00
70.00
S77°45'00"E
168.80
16.08
61.24
LOT 213
9758 SQFT
3.56
56.45
S77°45'00"E
156.51
301-281-42
PARRIS
100.00
LOT 220
7000 SQFT
S 0°43'10"W
100.00
LOT 216
7000 SQFT
LOT 215
7000 SQFT
N 0°43'10"E
100.00
77.34
LOT 214
10030 SQFT
40.96
CABLE TV BOX
70.00
15
15
70.00
70.00
7.00
108.66
R=25
40.40
20.00
TFC
SANITARY SEWER CLEAN-OUT
N89°16'50"W
LUNDBLADE DRIVE
N89°16'50"W
DICKSON DRIVE
50"E



LOT 217
39400 SQFT
LOT 215
7000 SQFT
S 0°43'10"W
100.00
N 0°43'10"E
100.00
70.00
70.00
90.00
65.00
38.00
20.00
LUNDBLADE DRIVE
7.00
77.34
61.24
92.23
138.30
LOT 214
10030 SQFT
LOT 213
9758 SQFT
LOT 212
13538 SQFT
LOT 211
20400 SQFT
108.66
84.64
156.51
168.80
198.03
S77°45'00"E
S77°45'00"E
S68°45'00"E
R=25
40.40
40.96
56.45
3.56
16.08
43.93
51.20
10.02
256.80
N12°15'00"E
159.13
25
25
R=100
N21°15'00"E
95.13
KATHLEEN COURT
25.00
28.08
N 9°30'00"W
60.84
15
15
R=50
65.23
S 9°30'00"E
46.90
30.89
65.33
R=25
49.68
60.16
24.42
30.77
3.08
11.78
6.93
LOT 202
8188 SQFT
LOT 203
9614 SQFT
LOT 204
10477 SQFT
N67°30'00"W
N72°00'30"W
N69°00'00"W
74.82
85.76
130.46
164.08
161.24
N39°45'30"E
75.50
221.26
60.00
LOT 201
14854 SQFT
LOT 200
19034 SQFT
S42°30'00"W
229.41
72.00
N55°30'00"W
99.50
171.50
LOT 205
27518 SQFT
N84°30'00"W
251.45
LOT 206
29605 SQFT
S60°00'00"W
297.66
162.00
172.75
203.00
N 0°48'39"E

ASSESSOR'S PARCEL NO. 301-031-039

LUNDBAR HILLS SUBDIVISION, UNIT No. 6
ADDRESS: 5130± LUNDBLADE DRIVE, EUREKA, CA
E 1/2 SEC. 3, T4N, R1W, HB&M.

OWNER & SUBDIVIDER

OWNER:	AGENT:
C. Robert Barnum	MIKE O'HERN
Fred H. Lundblade, Jr.	KELLY-O'HERN ASSOC.
P. O. Box 1425	3240 MOORE AVE.
EUREKA, CA 95502	(707) 442-7283

DEED

DOC. No. 1914.OR.0040436 22.M.100, Remainder Parcel

AREA

1,208,873 S.F.± (27.75 ACRES ±)

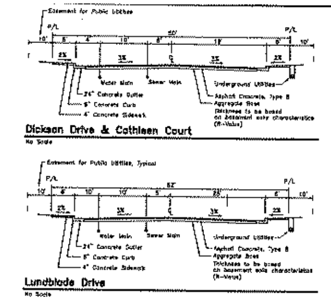
CURRENT ZONING & GENERAL PLAN DESIGNATION

CURRENT ZONING IS RS, RESIDENTIAL SINGLE FAMILY, 6,000 S.F. MINIMUM PARCEL SIZE.

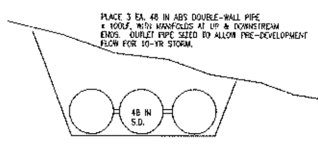
GENERAL PLAN DESIGNATION IS R-L, RESIDENTIAL LOW DENSITY, 4.1 TO 8 UNITS PER ACRE.

NOTES

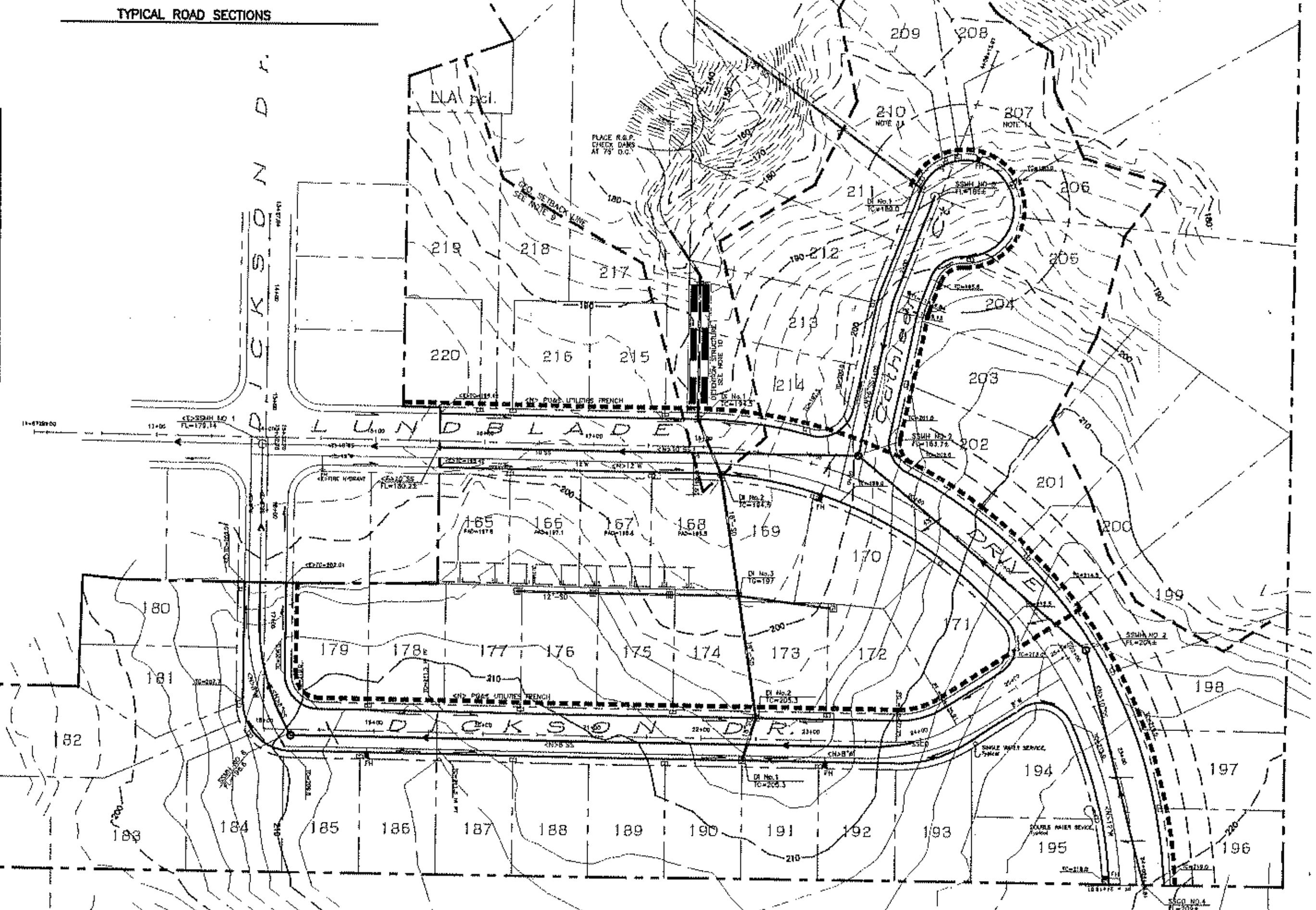
1. PROJECT DESCRIPTION: TO CREATE 56 LOTS AND A REMAINDER PARCEL FROM THE EXISTING 27.75 Ac. PARCEL.
2. CURRENT USE: THE PARCEL IS CURRENTLY VACANT.
3. UTILITIES:
   P.G.&E.: PRIMARY ELECTRIC AND GAS FROM LUNDBLADE DRIVE
   PHONE & CATV: FROM LUNDBLADE DRIVE & DICKSON CT.
   WATER & SEWER: AVAILABLE FROM CITY OF EUREKA EXISTING WATER AND SEWER MAINS AT THE END OF LUNDBLADE DR. & DICKSON CT.
4. FIRE PROTECTION: PROVIDED BY THE EUREKA FIRE PROTECTION DISTRICT.
5. ACCESS: CITY STREETS AS SHOWN, CONSTRUCTED TO CITY STANDARDS.
6. DRAINAGE: A NEW STORM DRAINAGE SYSTEM WILL BE INSTALLED PER ACCOMPANYING PRELIMINARY DRAINAGE REPORT BY THIS OFFICE.
7. TOPOGRAPHY IS FROM A FIELD SURVEY BY KELLY-O'HERN ASSOCIATES PERFORMED MAY, 2002, CONTOUR INTERVAL = 2 FT.
8. THIS MAP IS INTENDED TO SHOW PROPOSED UTILITY DESIGN AND PRELIMINARY GRADING ONLY. SEE ACCOMPANYING TENTATIVE MAP BY KELLY-O'HERN ASSOCIATES FOR ADDITIONAL PLANNING AND SURVEYING INFORMATION.
9. THIS PRELIMINARY DESIGN IS BASED ON A "R-1 PRELIMINARY ENGINEERING GEOLOGIC INVESTIGATION" FOR THE SUBJECT PROPERTY BY DAVID R. BRADLEY, PE, DATED AUG. 27, 2002, SHN GEOLOGISTS.
10. AN UNDERGROUND STORM DETENTION STRUCTURE SHALL BE CONSTRUCTED TO DETAIN STORMWATER FLOWS AS REQUIRED BY CITY STANDARDS.
11. LOTS 207 THROUGH 210 WILL REQUIRE INDIVIDUAL SANITARY SEWER SUMPS AND PUMPS.

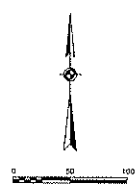


TYPICAL ROAD SECTIONS

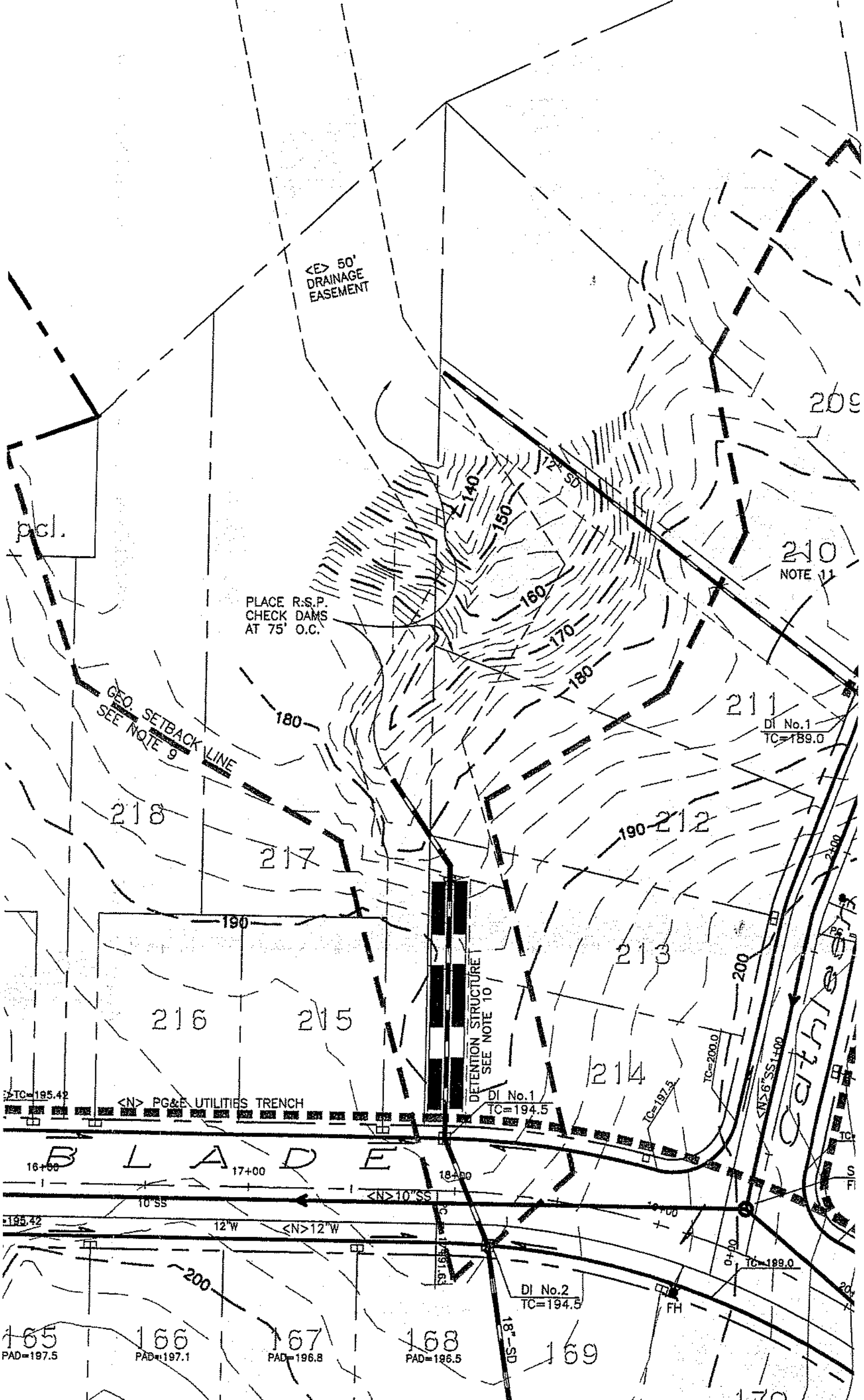


DETENTION STRUCTURE

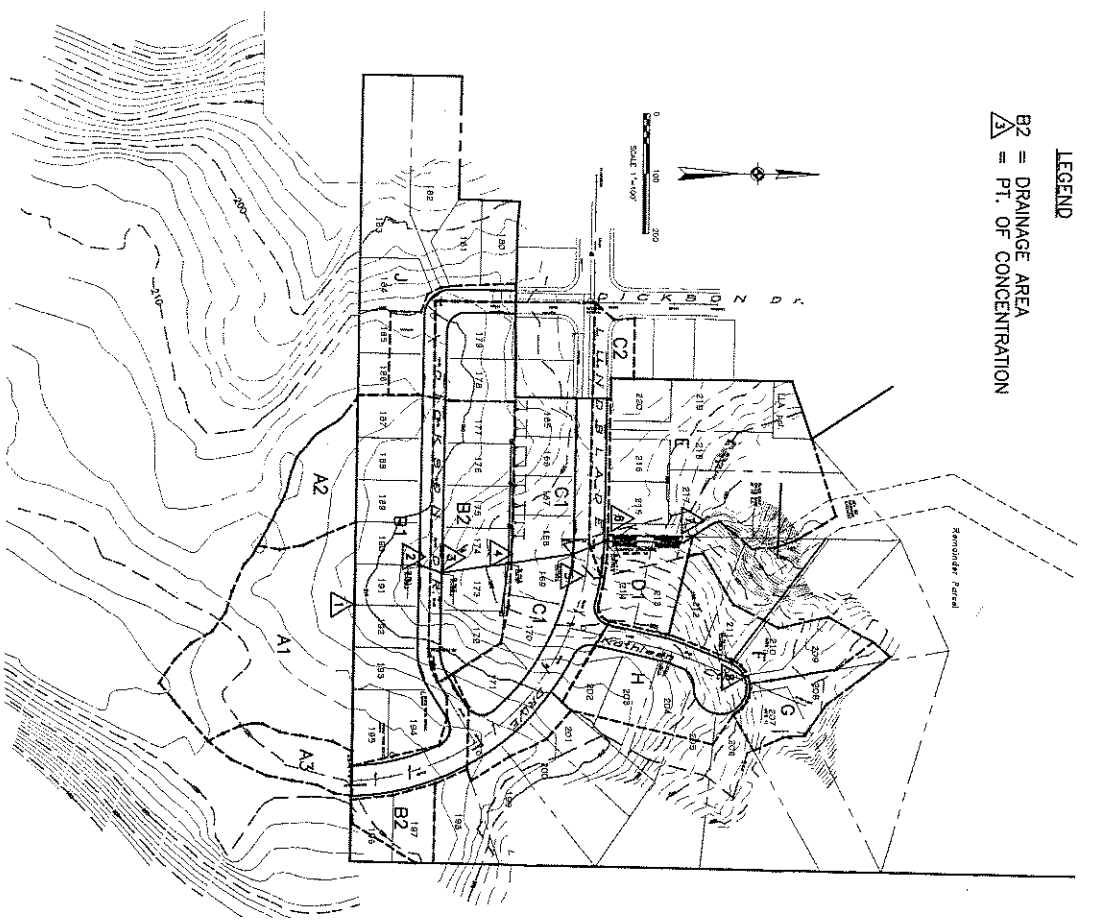




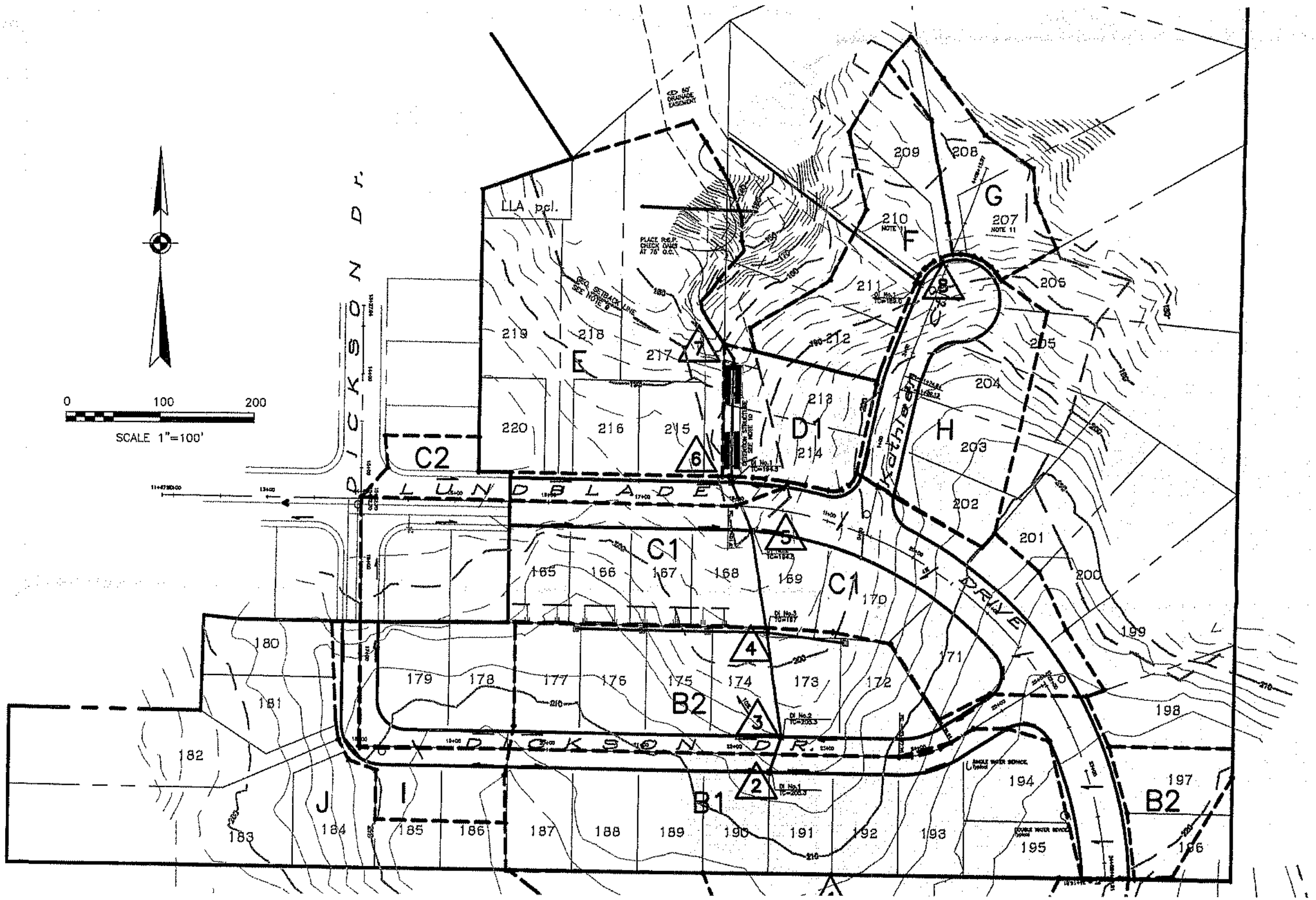
DATE July 7, 2003	Barnum & Lundblade Eureka, CA	FORSYTH ENGINEERING CIVIL ENGINEER, LAND SURVEYOR 1250 Spring Street ARCATA, CALIFORNIA 95521 (707) 822-5114	Rev. No. / Date / Approved / Revision(s) Made
SHEET 1 OF 1	Lundbar Hills Subdivision, Unit No.6		
DWG NO. 0217TM1.dwg	TENTATIVE MAP – UTILITY & GRADING		
JOB NO. 0217	Eureka, CA		



<E> 50' DRAINAGE EASEMENT
pcl.
209
210
NOTE 11
12" SD
140
150
160
170
180
PLACE R.S.P. CHECK DAMS AT 75' O.C.
GEO. SETBACK LINE SEE NOTE 9
211
DI No.1
TC=189.0
218
217
212
190
213
216
215
214
DETENTION STRUCTURE SEE NOTE 10
DI No.1
TC=194.5
<N> PG&E UTILITIES TRENCH
TC=195.42
TC=197.5
TC=200.0
200
<N>6"SS
BLADE
16+00
17+00
18+00
<N>10"SS
10"SS
12"W
<N>12"W
195.42
DI No.2
TC=194.5
TC=199.0
FH
18"-SD
165
PAD=197.5
166
PAD=197.1
167
PAD=196.8
168
PAD=196.5
169



DATE July 7, 2003	LUNDBAR HILLS Eureka, California	FORSYTH ENGINEERING CIVIL ENGINEER, LAND SURVEYOR 1298 Spring Street ARCATA, CALIFORNIA 95521 (707) 822-5114	Rev. No.	Date	Approved	Revision(s) Made
SHEET 1 OF 1						
DWG. NO. X	Hydrology Map No. 2	APPROVED				
JOB NO. 0217-Hydro		License Expires 9-30-2004 RCE 34,445				


SCALE 1"=100'
0
100
200
DICKSON Dr.
LUNDBLADE
DICKSON DR.
Kathleen
DRIVE
LLA pcl.
DETENTION STRUCTURE SEE NOTE 10
GEO. SETBACK LINE SEE NOTE 9
PLACE R.E.P. CHECK DAMS AT 75' O.C.
50' DRAINAGE EASEMENT
C2
C1
B2
B1
D1
E
F
G
H
I
J
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
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208
209
210
211
212
213
214
215
216
217
218
219
220
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
SINGLE WATER SERVICE
DOUBLE WATER SERVICE

TOPOGRAPHIC SURVEY

FOR

ROBERT BARNUM & FRED LUNDBLADE

IN

SE 1/4 SECTION 3 T4N, R1W, H.M.
MAY, 2002 SCALE 1" = 50'

HUMBOLDT COUNTY
STATE OF CALIFORNIA

KELLY-O'HERN ASSOCIATES
EUREKA, CALIFORNIA

Michael J. O'Hern L.S. 4829
License expires 9/30/04
Dated _____

LICENSED LAND SURVEYOR
MICHAEL J. O'HERN
No. 4829
Exp. 9/30/04
STATE OF CALIFORNIA

CHANGES/ADDITIONS:

JULY 20, 2002 - SHN TEST PITS AND SLOPE SETBACK LINE ADDED. DRAINAGE EASEMENT ADDED

NOTES

1. PURPOSE: THE PURPOSE OF THIS MAP IS TO PROVIDE TOPOGRAPHIC INFORMATION FOR PROPOSED SITE PLANNING.
2. DATE OF SURVEY: MAY, 2002
3. DATUM: CITY OF EUREKA, FROM CITY MONUMENT NO. 295 (BOYLE DRIVE EC MONUMENT) EL. 179.75
4. PROPERTY LINE INFORMATION: BOOK 22 MAPS, PAGES 99, 100 & 101. ADDITIONAL SURVEY TIES ARE NEEDED FOR VERIFICATION OF THE PROPERTY LINES SHOWN.
5. UNDERGROUND DISCLAIMER: NO RESEARCH OR INVESTIGATION REGARDING UNDERGROUND PIPES, ELECTRIC LINES, OR OTHER SUBSURFACE FEATURES HAS BEEN PERFORMED FOR THIS MAP. NO LIABILITY IS ASSUMED FOR ANY UNDERGROUND INFORMATION.

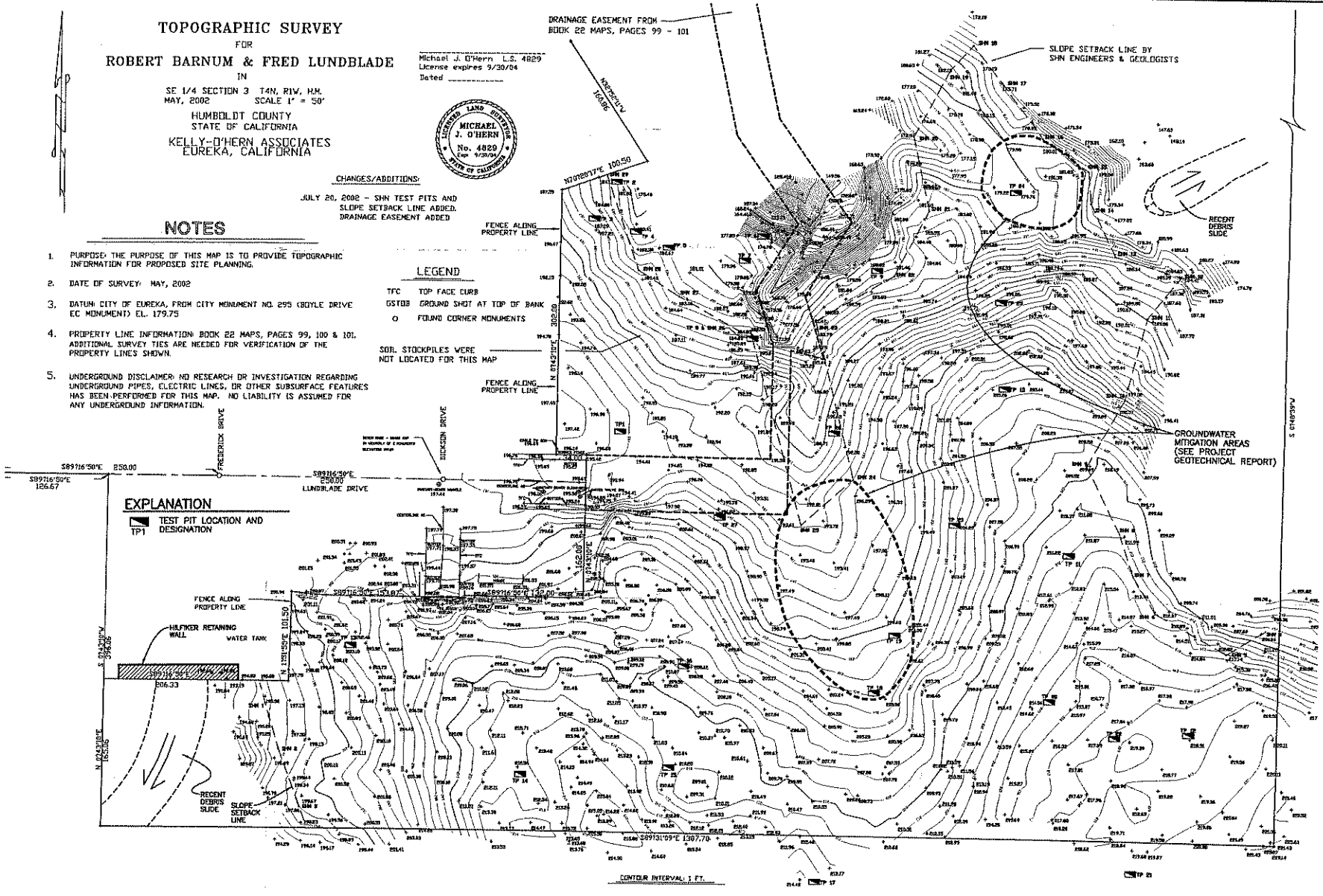
LEGEND

TFC	TOP FACE CURB
GSTOB	GROUND SHOT AT TOP OF BANK
o	FOUND CORNER MONUMENTS

SOIL STOCKPILES WERE NOT LOCATED FOR THIS MAP

EXPLANATION

TP1 TEST PIT LOCATION AND DESIGNATION



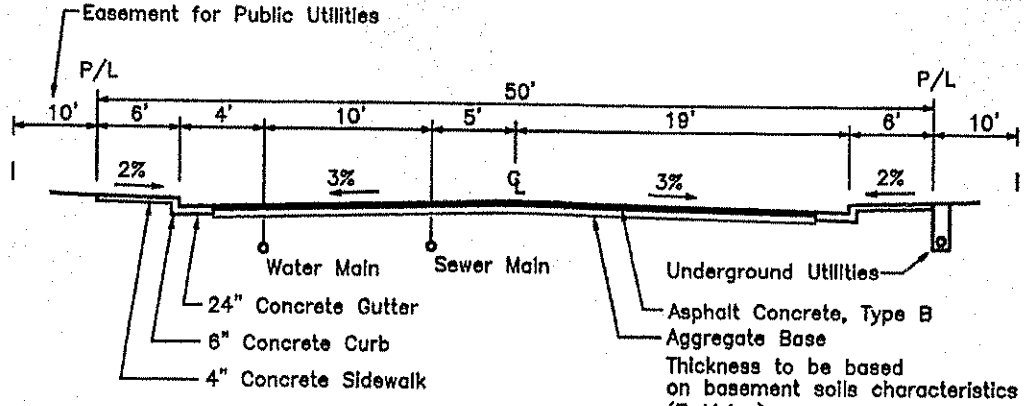
CONSULTING ENGINEERS & GEOLOGISTS, INC.
812 W. Wabash (707)441-8855

LUNDBAR HILLS, EAST UNIT
LUNDBLADE DRIVE
EUREKA, CALIFORNIA

SITE PLAN

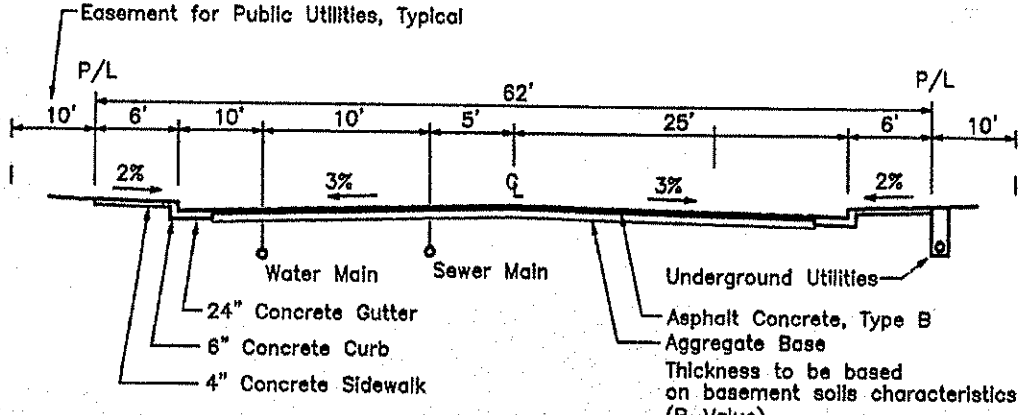
SHEET 1 OF 1
DATE 8/2002
PROJ. NO. 002185

002185-TEST-PITS



Dickson Drive & Cathleen Court

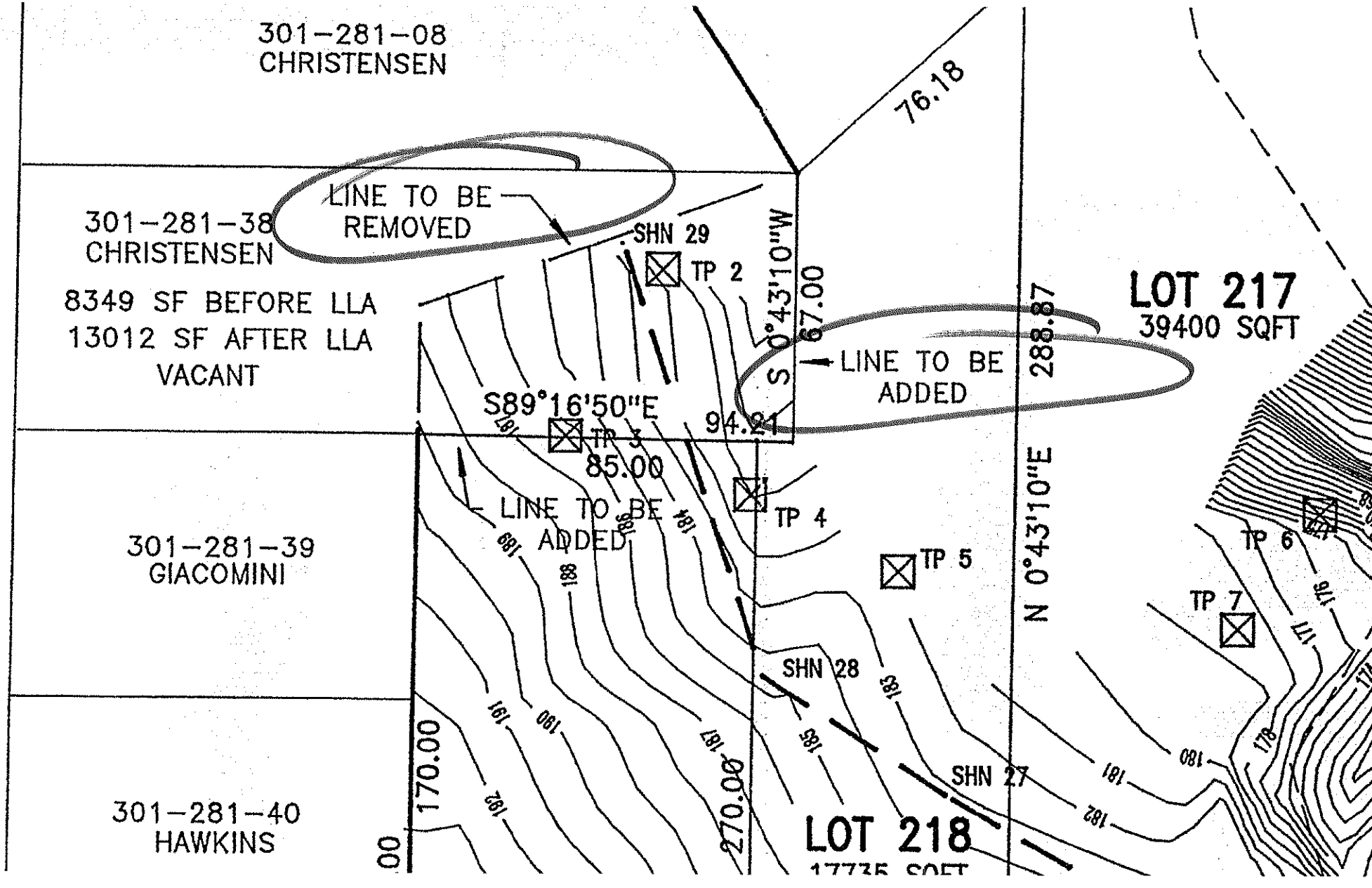
No Scale

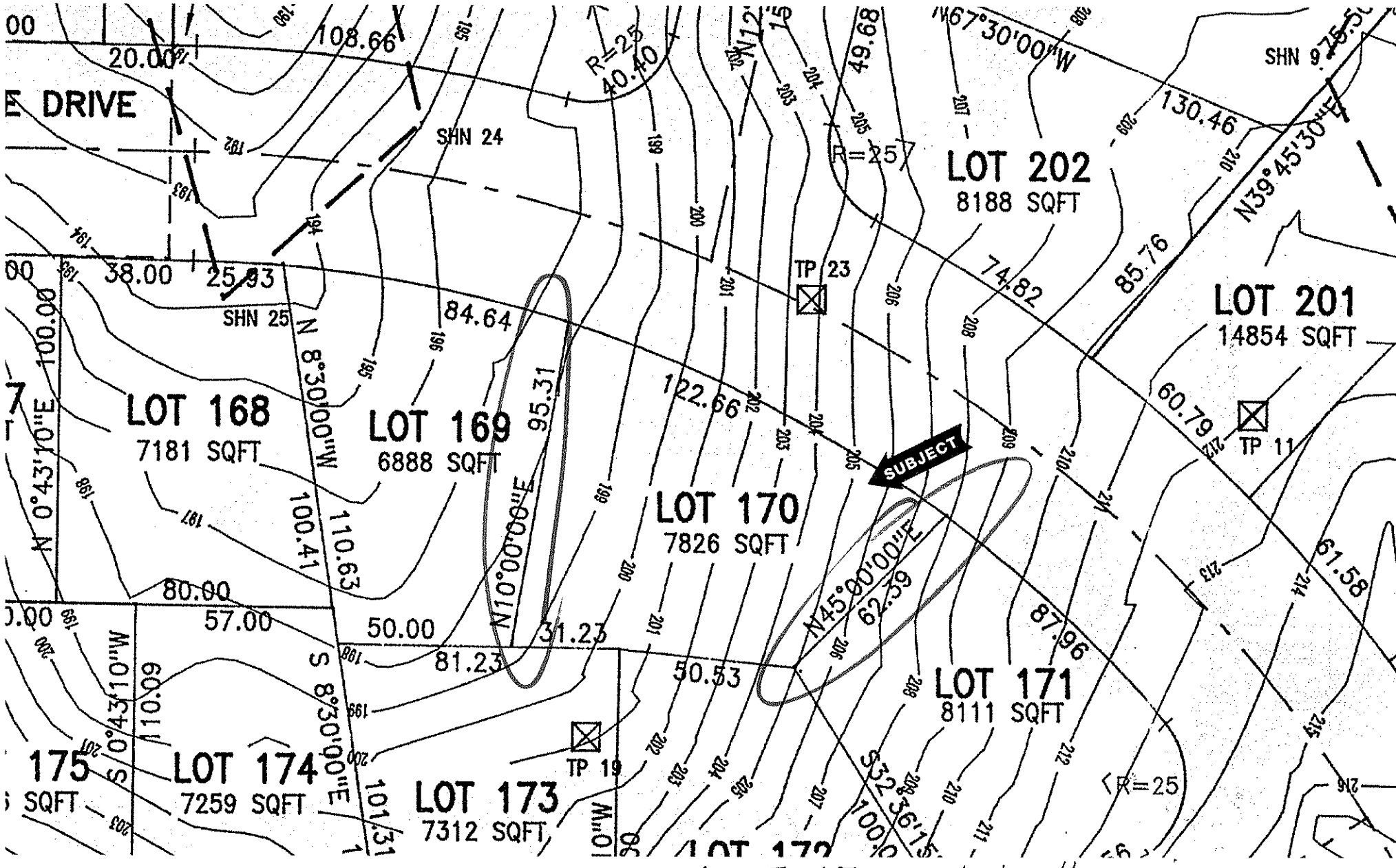


Lundblade Drive

No Scale

TYPICAL ROAD SECTIONS


301-281-08
CHRISTENSEN
76.18
LINE TO BE
REMOVED
301-281-38
CHRISTENSEN
8349 SF BEFORE LLA
13012 SF AFTER LLA
VACANT
SHN 29
TP 2
S 0°43'10"W
67.00
LOT 217
39400 SQFT
LINE TO BE
ADDED
288.87
S89°16'50"E
94.21
TP 3
85.00
TP 4
LINE TO BE
ADDED
TP 5
TP 6
TP 7
N 0°43'10"E
301-281-39
GIACOMINI
SHN 28
SHN 27
170.00
270.00
LOT 218
301-281-40
HAWKINS


E DRIVE
SHN 24
SHN 25
SHN 9
LOT 202
8188 SQFT
LOT 201
14854 SQFT
LOT 168
7181 SQFT
LOT 169
6888 SQFT
LOT 170
7826 SQFT
SUBJECT
LOT 171
8111 SQFT
LOT 174
7259 SQFT
LOT 173
7312 SQFT
TP 23
TP 11
TP 19
R=25
R=25
R=25
20.00
108.66
40.40
49.68
130.46
38.00
25.93
84.64
74.82
85.76
100.00
95.31
122.66
60.79
N 8°30'00"W
N 0°43'10"E
N10°00'00"E
N45°00'00"E
S 8°30'00"E
S 0°43'10"W
80.00
57.00
50.00
31.23
81.23
50.53
62.39
87.96
61.58
100.41
110.63
110.09
101.31
S32°36'15"
100.0
N67°30'00"W
N39°45'30"E
LOT 170 lot depth variance

CHECKLIST AND EVALUATION OF ENVIRONMENTAL IMPACTS: An explanation for all checklist responses is included, and all answers take into account the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts. The explanation of each issue identifies (a) the significance criteria or threshold, if any, used to evaluate each question; and (b) the mitigation measure identified, if any, to reduce the impact to less than significance. In the **CHECKLIST** the following definitions are used:

"**Potentially Significant Impact**" means there is substantial evidence that an effect may be significant.

"**Less Than Significant with Mitigation Incorporated**" means the incorporation of one or more mitigation measures can reduce the effect from potentially significant to a less than significant level.

"**Impact**" means that the effect is less than significant and no mitigation is necessary to reduce the impact to a lesser level.

"**No Impact**" means that the effect does not apply to the proposed project, or clearly will not impact nor be impacted by the project.

I. **AESTHETICS.** Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?			X	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?			X	
c) Substantially degrade the existing visual character or quality of the site and its surroundings?			X	
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?		X		

Thresholds of Significance:
This Initial Study considers whether the proposed project may have any significant effects on visual aesthetics because of: (a) the short-term or long-term presence of project-related equipment or structures; (b) project-related changes in the visual character of the project area that may be perceived by residents or visitors as a detraction from the visual character of the project area; (c) permanent changes in physical features that would result in the effective elimination of key elements of the visual character of the project area near a state scenic highway; or (d) the presence of short-term, long-term, or continuous bright light, such as from nighttime security lights, that would detract from a project area that is otherwise generally dark at night or that is little subject to artificial light.

Discussion:
The proposed project will include a major subdivision of 19.2 acres, resulting in 56 parcels, ranging in size from 6,500 square feet to 49,400. The project is located outside of the coastal development zone so there are no mapped or designated Coastal Scenic or Coastal View areas that will be impacted by the proposed development. The description of the proposed development and comments from referral agencies reinforce that there is no evidence the project will have a significant impact on or detract from the visual character or quality of the area. This project will be similar to previous phases of Lundbar Hills.

The proposed project has the potential to result in substantial new sources of light or glare in the close vicinity of the site due to the introduction of additional street and exterior home lighting; and automobile traffic. By incorporating a mitigation measure that stipulates exterior lighting specifications, the potential impact will be mitigated to less than significant. Lighting shall be fully shielded and placed so as not to extend beyond the boundaries of the project site. Please refer to Mitigation Measure No. 1.

The view from the site is of undeveloped timberland to the north, east and south. New single family residences are visible to the west. Due to tree cover, the subject property is only visible from the streets and residences that are west of this property. After subdivision and development of residences, the subject property will be a continuation of the existing neighborhood.

Based on the discussion above and the mitigation measure listed below, the proposed project will not have an adverse affect on the aesthetics in the vicinity of the project.

MITIGATION MEASURE NO. 1.
Any exterior lighting, other than street lights on public roads, shall be low, fully shielded, directional lighting that will focus light on the project parcel, and specifically away from the adjacent gulch greenway, neighboring residences, and roadways, to minimize off-site light and glare effects to the satisfaction of the City of Eureka.

II. AGRICULTURE RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
c) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?				X

Thresholds of Significance:
This Initial Study considers to what degree the proposed project would: (a) change the availability or use of agriculturally important land areas designated under one or more of the programs above; (b) cause or promote changes in land use regulation that would adversely affect agricultural activities in lands zoned for those uses, particularly lands designated as Agriculture Exclusive or under Williamson Act contracts; or (c) change the availability or use of agriculturally important land areas for agricultural purposes.

Discussion:
The proposed subdivision is part of a phased development. The entire project site is 19.2 acres, a large portion (12.3 acres) is previously logged timberland. The property is lightly stocked with trees at this time. The predominant species of tree is Redwood. An area of Monterey Pines was planted some time ago. These trees are now mature and near the end of their life span. Douglas Fir and Sitka Spruce are also found on the site. For agricultural purposes, the subject property is relatively small in size. In addition, the topography of the parcel and the residential zoning of this and adjacent parcels cause the subject parcel to be not economically viable agricultural parcel.

The nearest "agricultural areas" are relatively steep timberlands to the north and east and recently harvested timberlands to the south. These lands are composed predominately of redwood with a smaller component of Douglas fir. Based on the intensity of the proposed use and comments from referral agencies, staff does not expect that the proposed development will have an impact on farmlands or agricultural lands.

The nearest areas zoned for agricultural use are approximately one mile to the east. Due to the relatively small size of the proposed project parcel and the residential zoning of this and adjacent parcels, the subject is not viable economically as an agricultural parcel.

III. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?			X	
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?		X		
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?			X	
d) Expose sensitive receptors to substantial pollutant concentrations?			X	
e) Create objectionable odors affecting a substantial number of people?			X	

Thresholds of Significance:
This Initial Study considers to what degree the proposed project would (a) directly interfere with the attainment of long-term air quality objectives identified by the North Coast Unified Air Quality Management District; (b) contribute pollutants that would violate an existing air quality standard, or contribute to a non-attainment of air quality objectives in the project's air basin; (c) produce pollutants that would contribute as part of a cumulative effect to non-attainment for any priority pollutant; (d) produce pollutant loading near identified sensitive receptors that would cause locally significant air quality impacts; or (e) release odors that would affect a number of receptors.

Discussion:
Eureka has an entirely maritime, mild climate; high humidity prevails throughout the year. The wet season occurs October to April and the dry season occurs May to September. Low clouds and heavy fog are common throughout the summer months. The average July maximum temperature is 61.6°F and the average January maximum temperature is 54.3°F. The average July minimum temperature is 52.3°F and the average January minimum temperature is 41.5°F. The average annual precipitation is 39.0 inches; the average annual snowfall is 0.3 inches.

The project itself, a residential subdivision, will not generate emissions or pollutants above air quality standards. However, during construction of road improvements and during site grading, dust may be produced at levels that may affect air quality with regards to particulate matter. In order to reduce this effect, the site should be watered to control dust.

Any burning of brush and logging slash will create smoke that will also contribute to an increase in particulate matter. Burning should be done at times when winds will carry smoke away from residences and are consistent with the North Coast Unified Air Quality Management District (NCUAQMD) guidelines. Brush and slash could also be chipped for spreading on-site or removal.

NCUAQMD is responsible for monitoring and enforcing local and state air quality standards. Air quality standards are set for emissions that may include, but are not limited to: visible emissions, particulate matter, and fugitive dust. Pursuant to Air Quality Regulation 1, Chapter IV, Rule 400 – *General Limitations*, a person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety of any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property. Visible emissions include emissions that are visible to the naked eye, such as smoke from a fire. The project could include visible emissions, including intentional fire/burn and dust from construction activities.

With regard to particulate matter, all of Humboldt County has been designated by the California State Air Quality Board as being in "non-attainment" for PM-10 air emissions. PM-10 air emissions include chemical emissions and other inhalable particulate matter with an aerodynamic diameter of less than 10 microns. PM-10 emissions include smoke from wood stoves and airborne salts and other particulate matter naturally generated by ocean surf. Because, in part, of the large number of wood stoves in Humboldt County and because of the generally heavy surf and high winds common to this area, Humboldt County has exceeded the state standard for PM-10 air emissions. Therefore, any use or activity that generates unnecessary airborne particulate matter may be of concern to the NCUAQMD.

Pursuant to Air Quality Regulation 1, Chapter IV, Rule 430 – *Fugitive Dust Emissions*, the handling, transporting, or open storage of materials in such a manner, which allows or may allow unnecessary amounts of particulate matter to become airborne, shall not be permitted. Reasonable precautions shall be taken to prevent particulate matter from becoming airborne, including, but not limited to: (1) covering open bodied trucks when used for transporting materials likely to give rise to airborne dust; and (2) the use of water or chemicals for control of dust in the removal of existing improvements, construction operations, the grading of roads or the clearing of land. Staff recommends that in order to reduce potential fugitive dust emission impacts, that a mitigation measure be incorporated into the project that requires compliance with Air Quality Regulation 1, Chapter IV, Rule 430.

Construction-related impacts are short-term and less than significant. Therefore, the project will not significantly expose receptors to substantial pollutant concentrations. With regard to objectionable odors, the project does not propose any use or construction technique that will result in odors that could reasonably be considered objectionable by the general public.

The NCUAQMD has advised that, generally, an activity that individually complies with the state and local standards for air quality emissions will not result in a cumulatively considerable increase in the countywide PM-10 air quality violation. Construction projects, such as that proposed; do not generate particulate matter greater than the local and/or state standard. Therefore, staff concludes that with the mitigation measure listed below, which requires compliance with NCUAQMD standards and regulations that the project will not result in adverse air quality impacts, nor result in a cumulatively considerable increase in the PM-10 non-attainment.

MITIGATION MEASURE NO. 2.

The applicant, at all times, shall comply with Air Quality Regulation 1, Chapter IV to the satisfaction of the NCUAQMD. This will require, but may not be limited to: (1) covering open bodied trucks when used for transporting materials likely to give rise to airborne dust; and (2) the use of water or chemicals for control of dust in the demolition, construction operations, grading of roads, or the clearing of land. Burning will be done at times when winds will carry smoke away from residences and are consistent with the North Coast Unified Air Quality Management District (NCUAQMD) guidelines. Brush and slash should be chipped for spreading on-site or removal.

IV. **BIOLOGICAL RESOURCES.** Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?			X	
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?		X		
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?			X	
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?				X
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X

Thresholds of Significance:
This Initial Study considers whether the proposed project would result in a significant adverse direct or indirect effects to: (a) individuals of any plant or animal species (including fish) listed as rare, threatened, or endangered by the federal or state government, or effects to the habitat of such species; (b) more than an incidental and minor area of riparian habitat or other sensitive habitat (including wetlands) types identified under federal, state, or local policies; (c) more than an incidental and minor area of wetland identified under federal or state criteria; (d) key habitat areas that provide for continuity of movement for resident or migratory fish or wildlife, or (e) other biological resources identified in planning policies adopted by the City of Eureka.

Discussion:
Environmental Setting
The subject site is located at the fringe of an established residential area of the City of Eureka, Humboldt County, California (T5N, R1E, southwest quarter of northeast quarter Section 17, Humboldt Base and Meridian). West of the project site is the neighborhood of Lundbar Hills, consisting of single-family residences. Elevations at the site range from approximately 90 to 200 feet above mean sea level (amsl).

Habitat at the Site
The site is within an urban area with both native and ornamental woody plant species. The parcel may include riparian vegetation, especially in the area of steep slopes, but this area is not proposed for development by this project. The top of the parcel is a flat plain dominated by areas with sparse tree cover and many invasive plant species including pampas grass (*Cortaderia jobata*), sweet vernal grass (*Anthoxanthum odoratum*) and foxglove (*Digitalis purpurea*). The lower portion is approximately 50-60% slope with a dense cover of coast redwood (*Sequoia semprivirens*) and sitka spruce (*Picea sitchensis*). The under-story in the lower forested portion has dense patches of swordfern (*Polystichum munitum*) and salal (*Gaultheria shallon*). There is also an area of alder (*Alnus rubra*) and riparian species cutting through the property from southwest to northeast (McGee, 2006).

The California Department of Fish & Game (CDFG) recommended (according to their October 27, 2003 comments) that a biological survey be completed due to possible affected wetlands on the project site. On July 10, 2005, a biologist from Eel River Sciences conducted a preliminary resource review and on-site visit to determine the presence or absence of wetlands and site conditions. Although the National Wetland Inventory (NWI) map does not identify any wetlands on the subject property, a field observation identified the area at the bottom of the existing drainage as possessing wetland characteristics. The federal manuals state that wetlands possess three essential characteristics: (1) hydrophytic vegetation; (2) hydric soils; and (3) wetland hydrology, which is the driving force of all wetlands. Therefore, the area at the bottom of the drainage supports all three characteristics and would be classified as scrub-shrub and emergent marsh wetland. No development is proposed in this area.

According to Eel River Sciences, the area at the top of the drainage is highly disturbed, graded and filled and should not be considered a jurisdictional wetland. The CDFG has recommended a non-disturbance buffer zone of 50 feet from the edge of a bank or wetland, or 25 feet from the outside edge of riparian vegetation, whichever is greater. The tentative parcel map confirms that the project proposes no development in the bottom of the drainage or down slope and that the project is confined to non-wetland and non-riparian areas. No development will occur in areas defined by Eureka's Gulches and Greenways map, contained in the Eureka General Plan. Consequently, there will be no impact on the wetland area at the bottom of the drainage as identified by Eel River Sciences. In fact, the project's proposed drainage improvements will improve the existing surface water quality by filtering suspended sediments thereby improving the viability of the wetlands located at the bottom of the drainage.

Special Status Species/Habitat Research
Prior to surveying the property, the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Vascular Plants of California (Tibor, 2001) and Jepson Manual (Hickman, 1993) were reviewed to determine the potential presence of all listed species in the adjacent quads surrounding the Eureka quadrangle and within this forest type. The CNPS inventory includes all plant species listed as rare or endangered by federal and state governments. Fifteen federally, state, or CNPS listed species that could potentially be found in this area were identified: Northern clustered sedge (*Carex arcta);* Flaccid sedge (*Carex lapetalea);* Meadow sedge (*Carex praticola*); Coast fawn-lily (*Erythronium revolutum);* Minute pocket-moss (*Fissidens pauperculus);* Heart-leafed Twayblade (*Listera cordata* var. *cordata*); Running pine (*Lycopodium clavatum*); Leafy-stemmed mitrewort (*Mitella caulescens);* Indian-pipe

(*Monotropa uniflora);* Howell's montia *(Montia howellii*); and Maple-leafed checkerbloom (*Sidalcea malachroides*).

The Lundbar development site was surveyed for the listed plant species on June 7th and 9th 2006 by plant biologist, Liz McGee. The most appropriate season to survey for most of these species is June through early August. The exception to this is Howell's montia (*Montia howelli*) which is found in vernally wet places from March to May. Accordingly, the parcel was surveyed for habitat appropriate for Howell's Montia.

Survey Results

A thorough investigation of the property produced one listed plant species. Maple-leaved checkerbloom (*Sidalcea malachroides*) was found at the upper, southern portion of the parcel in a disturbed area on the edge of the forest. Maple-leaved checkerbloom is a Perennial herb that flowers May-August and is found in northwestern California to western Oregon. Common habitat for this species consists of Broad-leafed Upland Forest, Coastal Prairie, and North Coast Conifer Forest (CNPS 2001). This species occurs in woodlands and clearings near the coast below 2000 feet (Jepson 1993).

Approximately 20 Maple-leaved checkerbloom plants arranged in 3 groups, within 300 ft. of each other, were discovered in the Southwest corner of the project area. All of these plants were at the edge of old skid roads and growing with other species associated with disturbance and moist habitats. Because this project includes a site conversion, this species will be impacted by the implementation of the project. Considering the extent of this species and its recorded response to disturbance, the net loss of this small population would appear to have no effect on its ultimate survival.

Maple-leaved checkerbloom has recently been down listed by the California Native Plant Society from List 2.22 to List 4.2. This means this plant is no longer considered rare, threatened or endangered in California, but is on a watch list due to increased reported occurrences and its ability to respond relatively well to disturbance in some cases. These plants appear to be healthy and robust in these partially shaded sites (McGee, 2006).

The other sensitive plant species listed for this region were not found or do not have suitable habitat at the project site. With mitigation taken for Maple-leaved checkerbloom, the proposed project will not have an adverse effect to sensitive or endangered plants. There will be an introduction of plant species as ornamentals; however, these already occur in abundance throughout the Eureka area.

According to their October 27, 2003 comments, CDF&G states that their Natural Diversity Database (NDDB) indicates the presence of northern spotted owl (*Strix occidentalis caurina*), a federally-listed threatened species, and coastal cutthroat trout (*Oncorhynchus clarki clarki*) and osprey (*Pandion haliaetus*), both California species of special concern, in the vicinity of the project site. The proposed development will result in a minor reduction of some vertebrates and invertebrates; this does not include any of the abovementioned sensitive or endangered species. The project will not result in the introduction of new animal species to the area and will not obstruct wildlife migration corridors (Lundbar #5).

The California Department of Fish & Game (CDFG) has expressed concern (according to their October 27, 2003 comments) regarding the Lundblade Drive extension. The extension of Lundblade Drive includes development of a subterranean detention structure which will occur on the extreme upper reaches of the gulch. This gulch functions primarily as a surface water conveyance system to lower elevation wetlands. Past logging and grading has severely impacted the function in the upper reaches of this gulch and as a result excessive sediment loads are being transported downstream. Construction of the road and detention facility will include sediment control measures (rock energy dissipaters, rock check dams, etc.) that will provide a more stable and functioning gulch and ensure protection from sedimentation to downstream wetlands. With implementation of proper construction methods, any development associated with the extension of Lundblade Drive should offset these impacts and create an improvement to the natural drainage course. This would result in less than significant impacts to the immediate area and downstream wetlands.

Although the probability of impacts occurring to Martin Slough are minimal, there is a slight potential for an adverse effect to occur during project construction, therefore a mitigation measure has been incorporated into the project that minimizes potential impacts to Martin Slough. To ensure that potential adverse effects to the Martin Slough and associated drainages are mitigated to less-than-a significant level, all SWPPP erosion control measures will be adhered to, as stipulated in the hydrology and water quality section of this document (refer to Mitigation Measure No. 7 and 8 in the

Hydrology and Water Quality section).

MITIGATION MEASURE NO. 3.
No disturbance to wetland areas at the bottom of the drainage shall occur.

MITIGATION MEASURE NO. 4.
Construction of the Lundblade Drive extension road and detention facility will include sediment control measures (rock energy dissipaters, rock check dams, etc.) that will provide a more stable and functioning gulch and ensure protection from sedimentation to downstream wetlands.

V. CULTURAL RESOURCES. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in '15064.5?		X		
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to '15064.5?		X		
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?			X	
d) Disturb any human remains, including those interred outside of formal cemeteries?			X	

Thresholds of Significance:
This Initial Study considers to what degree the proposed project would cause (a) physical changes in known or designated historical resources, or in their physical surroundings, in a manner that would impair their significance; (b) physical changes in archaeological sites that represent important or unique archaeological or historical information; (c) unique paleontological resource site or unique geologic feature; or (d) disturbance of human burial locations.

Discussion:
Native Americans once settled the shores of Humboldt Bay. Later, non-Native Americans settled here prior to the establishment of the City of Eureka. Therefore, paleontological, archaeological, historical or unique ethnic or sacred resources are common around the Bay. The proposed construction will require grading and excavations, therefore, the chance of encountering cultural resources is possible. Consultation with the Table Bluff Rancheria Tribal Office, states that, at the current time, they do not foresee any cultural concerns with the proposed project area. However, if any archeological evidence is discovered they will be contacted immediately.

The project site has been logged at least twice in the last 150 years. No historical structures were found on the property. However, if undiscovered paleontological, archaeological, historical, ethnic or religious resources are encountered during demolition or construction activities State Law requires that all work cease and a qualified cultural resources specialist be contacted to analyze the significance of the find and formulate further mitigation (e.g. project relocation, excavation plan, protective cover). And, pursuant to the California Health and Safety Code Section 7050.5, if human remains are encountered, all work must cease and the County Coroner contacted. Staff recommends that a mitigation measure be incorporated to specify required compliance with state law.

Because the potential of exposing paleontological, archaeological, historical or unique ethnic or sacred resources during construction is low and is already regulated by State Law, Staff concludes that with mitigation, the project will not result in a substantial adverse change in the significance of a historical or archaeological resource, nor directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, nor disturb any human remains.

MITIGATION MEASURE NO. 5.
If any area of cultural deposits is discovered during the course of the project, as required by law, all work shall cease and a qualified cultural resources specialist shall be contacted to analyze the significance of the find and formulate further mitigation (e.g. project relocation, excavation plan, protective cover). And, pursuant to the California Health and Safety Code Section 7050.5, if human remains are encountered, all work must cease and the County Coroner contacted.

VI. GEOLOGY AND SOILS. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.			X	
ii) Strong seismic ground shaking?		X		
iii) Seismic-related ground failure, including liquefaction?		X		
iv) Landslides?		X		
b) Result in substantial soil erosion or the loss of topsoil?		X		
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?		X		
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?			X	
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?			X	

Thresholds of Significance:
This Initial Study considers project-related effects that could involve or result from: (a) damage to project elements as a direct result of fault movement along a fault identified in the Alquist-Priolo study or other known fault; (b) damage to project elements as a direct or indirect effect of seismically derived ground movement; (c) damage to project elements because of landslides that are not seismically related; (d) project-derived erosion by water or wind of more than a minimal volume of earth materials; (e) project-derived or project-caused secondary instability of earth materials that could subsequently fail, damaging project elements or other sites or structures; (f) location of project elements on expansive soils that are identified by professional geologists, which could result in damage to project elements or other sites or structures.

Discussion:
In August 2002, a Preliminary Engineering Geologic and Geotechnical Investigation was prepared by SHN Consulting Engineers and Geologists, Inc. The study provides descriptions of the geological setting and geotechnical site conditions as well as geotechnical recommendations, construction considerations, and monitoring recommendations.

Geological Setting
The Lundbar Hills development site is located on an uplifted late Pleistocene age marine terrace remnant consisting of planar abrasion platforms overlain by marine deposits. Terrace deposits are typically less than about 30 feet thick and consist of poorly consolidated sands, silts, clays, and gravels. No high plasticity clayey soils strata were encountered, or are generally anticipated in the marine terrace sediments underlying the site. Risk of adverse consequences to structures from expansive soils is considered low (SHN Investigation, 2002).

Mass wasting (i.e. landsliding) processes that affect hill-slopes in the project vicinity are characterized by shallow debris slides and translational failures. Two areas of recent sliding were noted in the site vicinity during a SHN field reconnaissance. These slides are naturally occurring failures that occur when sufficient colluvial material accumulates in a swale or hollow, and a significant storm delivers enough concentrated rainfall to raise pore pressures to a critical failure threshold (i.e., soil sheer strength is reduced enough to initiate failure). Slope failures due to alterations to the natural landscape by fill loading and site grading are also evident near the water tank in the southwest corner of the project area.

SHN recommends a slope setback line intended to demark areas that can be developed utilizing typical Building Code foundation criteria, at a low risk of slope instability from either creep or landsliding associated with the site's steeper locations behind the setback line. A low risk of slope instability is considered generally suitable for conventional

residential structures, provided the mandates of the currently-in-use edition of the Uniform Building Code are followed. Development in the low slope stability hazard area within the slope setback line is not expected to contribute to, or be subject to, substantial geologic hazards throughout the economic lifespan of the project, provided that site recommendations are followed. Development proposals for areas outside of this line will require site-specific geotechnical/geologic investigations (SHN Investigation, 2002).

Seismic Setting

The North Coast is the location of numerous fault lines and is near the intersection of three tectonic plates where there are high levels of seismic activity. Located about 2.5 miles southwest of the site is a surface trace of the Little Salmon fault, however, the fault dips to the northeast, and passes less than 2.0 kilometers below the site. Radiocarbon dating suggests that earthquakes have occurred on the Little Salmon fault about 300, 800, and 1,600 years ago. The average yearly slip rate for the fault is between 6 and 10 millimeters and the maximum magnitude earthquake for the Little Salmon fault is thought to be between 7.0 and 7.3 (CDMG/USGS, 1996). A review of the Alquist-Priolo Earthquake Fault Zoning Maps revealed the proposed project is not in an area where a rupture by this fault is known or expected.

The risk associated with liquefaction and other secondary seismic effects is low at the subject site because the earth materials underlying the site are not typically susceptible. Test pits at the site encountered minimal amounts of clean sand or silt, the most susceptible earth materials to liquefaction. No groundwater seepage was observed entering SHN test pits during the short time period they were open and no springs were observed in the mildly to moderately sloping area to be developed.

Seismogenic effects at the site are likely to be limited to earthquake-induced landsliding along the hillslopes bordering the project areas. Impacts associated with these failures are likely to be mitigated by the slope setback, as recommended above. Moreover, all property within the City of Eureka is located in 'Seismic Zone 4' as prescribed by the Uniform Building Code and all new construction must comply with these construction standards. Because construction that conforms to the Uniform Building Code is presumed to meet the building safety standard, the potential impacts from seismic ground shaking and seismic ground failure, including liquefaction, are considered less than significant (SHN Investigation, 2002).

Conclusion & Geotechnical Recommendations

Based on field and laboratory investigation results, SHN Consulting Engineers and Geologists concluded that the project site can be developed as proposed, provided that their recommendations are followed, and that noted conditions and risks are acknowledged. In order to mitigate geologic hazards, SHN has made geotechnical recommendations pertaining to (1) site preparation and grading, (2) structural foundations, (3) slabs-on-grade, (4) retaining walls, (5) sub-drains, and (6) drainage and erosion. Considerations for construction and construction phase monitoring are also provided in their study. The primary geotechnical site considerations include: adequate setbacks from steeper side-slopes that may be unstable; management of excess soil moisture where residences may be developed in relatively low-in-elevation and poorly drained areas; and deeper required foundations or soil remediation that may be required where upper soils were disturbed and loosened by removal of tree stumps and their major root systems.

The project requires additional sewer connections (See Section: XVI. UTILITIES AND SERVICE SYSTEMS). The project will not have septic tanks or other alternative wastewater disposal systems.

Based on these conclusions, staff finds that the project will not result in substantial adverse impacts relating to geology and/or soils.

MITIGATION MEASURE. 6.

All activities of this project site shall comply with the recommendations of the Preliminary Engineering Geologic and Geotechnical Investigation report prepared by SHN Consulting Engineers and Geologists, Inc, August 2002. These include activities associated with: (1) site preparation and grading, (2) structural foundations, (3) slabs-on-grade, (4) retaining walls, (5) sub-drains, and (6) drainage and erosion. If a new or revised Engineering Geologic and Geotechnical Investigation report is prepared, the recommendations of the new or revised report shall be followed. This mitigation measure shall be completed to the satisfaction of the City.

VII. HAZARDS AND HAZARDOUS MATERIALS. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?		X		
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?				X
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
d) Be located on a site which is included on a list of hazardous materials sites complied pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?				X
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?				X
g) Impair implementation of, or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized area or where residences are intermixed with wildlands?				X

Thresholds of Significance:

This Initial Study considers to what degree the proposed project would involve: (a) potential storage or use, on a regular basis, of chemicals that could be hazardous if released into the environment; (b) operating conditions that would be likely to result in the generation and release of hazardous materials; (c) use of hazardous materials, because of construction-related activities or operations, within a quarter-mile of an existing or proposed school; (d) project-related increase in use intensity by people within the boundaries of, or within two miles of, the Airport Planning Areas; (e) project-derived physical changes that would interfere with emergency responses or evacuations; (f) potential major damage because of wildfire.

Discussion:

There is no evidence to indicate that contaminated soils are present at the proposed project site. However, during project construction, if there is any evidence that indicates contaminated soils are present on the site, either from visual observations or odors indicative of regulated substances, the applicant shall be responsible for performing soil sample analyses. Based on the results of the analysis, the applicant shall consult with jurisdictional agencies regarding follow-up procedures. The applicant shall comply with all requirements/regulations of the appropriate agencies with regard to handling, transport and disposal of potential hazardous substances to the satisfaction of the applicable agency.

The project will have no impact on the City of Eureka's emergency response or evacuation plans. No new access points are proposed as part of the project. The existing driveway locations will be utilized as part of the proposed project. As discussed in section XIII, Public Services, buildings will be sprinkled as an alternative to emergency vehicle secondary access.

According to the August 2003 letter by Thomas Osipowich, Unit Chief of the California Department of Forestry and Fire Protection (CDF):

"The CDF has no input on projects wholly contained in Local Responsibility Areas (LRA). However, CDF is concerned with LRA land adjacent to State Responsibility Areas (SRA); where an uncontrolled fire may threaten SRA lands. In those areas, CDF recommends that local standards be enforced equal to, or more restrictive than, those CDF makes for

SRA lands.

CDF has enforcement responsibility for requirements of the Z'berg-Nejedly Forest Practice Act of 1973. CDF is also the lead agency for those parts of projects involving the scope of the Forest Practice Act. The applicant should contact the closest Area Forester for any CDF permitting, conversion, or harvest planning questions.

The following comments reflect the basic Resource Management policies of the Board of Forestry and CDF on CEQA review requests. These policies apply to both Local and State Responsibility Areas. After the subdivision has been approved by the city and all required documentation is complete, an application may be made to CDF for an "Exemption for Conversion for Subdivision" as prescribed under California Code of Regulations (CCR) 1104.2. After the Exemption for Conversion is approved, a Timber Harvesting Plan may then be submitted if logging operations are planned. No commercial timber operations may occur until the appropriate plans and permits are approved."

Based on the discussion above, and with the mitigation as described below, staff concludes that the project will not result in any substantial adverse impacts with regards to hazards and hazardous materials.

MITIGATION MEASURE NO. 7.

During project construction, if there is any evidence that indicates contaminated soils are present on the site, either from visual observations or odors indicative of regulated substances, the applicant shall be responsible for performing soil sample analyses. The findings of the survey shall be submitted, as applicable, to the RWQCB, DTSC, and any other appropriate regulatory agencies. The applicant shall comply at all times with the requirements and regulations of the RWQCB, DTSC, and other agencies with regard to the handling, transport, and disposal of hazardous materials such as contaminated soils to the satisfaction of the applicable agencies.

VIII. HYDROLOGY AND WATER QUALITY. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?		X		
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g. the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?				X
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner, which would result in substantial erosion or siltation on- or off-site?			X	
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site?			X	
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?			X	
f) Otherwise substantially degrade water quality?			X	
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary of Flood Insurance Rate Map or other flood hazard delineation map?				X
h) Place within a 100-year flood hazard area structures, which would impede or redirect flood flows?				X
i) Expose people or structures to a significant risk or loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				X

j) Result in inundation by seiche, tsunami, or mudflow?				X

Discussion:
Development of the proposed project will not alter the course of a stream or river, and does not include development in an area near a levee or dam. Because the project will not alter the course of a stream or river, is not located near a levee or dam, and is not affected by the 100-year flood hazard area, it is not anticipated that there will be project-related effects that will involve substantial flooding on- or off-site.

The California RWQCB states that a NPDES General Storm Water Permit for Construction Activities must be obtained from RWQCB. This will be handled as a condition of approval. The City of Eureka policy requires on-site detention to mitigate the increase in impervious surfaces caused by road construction and house construction. Detention facilities have been included in preliminary engineering plans that are part of the application package.

The Forsyth Engineering Preliminary Drainage study and Hydrology Report, dated July 2003, indicates that runoff will flow overland and be initially collected by curb and gutter flow to two drop inlets at a sag point in the proposed Dickenson Drive. They propose the use of a 48-inch diameter pipe with a reduced-size outlet under Dickenson Drive to provide adequate storm-water detention time. From this point, the drainage will be conveyed by an 18-inch storm drain to drop inlets collecting the drainage from Lundblade Drive. Immediately downstream northerly from Lundblade Drive an additional underground detention structure will be placed in an easement on Lots 213 & 214: or alternately (or additionally) the underground detention structure can be placed within the Lundblade Drive right of way. In addition, further downstream in the existing gulch, rock energy dissipaters, rock check dams, and standard erosion control measures should be placed to provide a stable natural channel down the gulch to the tributary to Martin Slough.

There will be no project related effects that would result in inundation by seiche, tsunami, or mudflow. Based on the discussion above, staff concludes that the proposed project will not result in a substantial impact regarding hydrology and water quality, if the proposed mitigation measures are incorporated as part of the project development.

MITIGATION MEASURE NO. 8.
To mitigate potential impacts to water quality and waste discharge requirements to less than a significant effect, applicant will secure a Storm Water and Pollution Prevention Plan (SWPPP), prior to the commencement of any construction activities. The applicant shall provide a copy to the City Community Development Department.

MITIGATION MEASURE NO. 9.
To mitigate the potential for storm water to carry additional pollutants from the project site, good housekeeping including maintenance and cleaning of the construction staging area(s) shall be on a regular basis. No debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete washings, oil or petroleum products, or other organic or earthen material from construction operations shall be allowed to enter or be placed where it can enter the Martin Slough. All erosion control measures and handling of petroleum products will be followed as specified in the SWPPP. Best Management Practices (BMP)'s will be implemented during all phases of construction.

IX. LAND USE AND PLANNING. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Physically divide an established community?			X	
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?			X	
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?			X	

Thresholds of Significance:
This Initial Study considers to what degree the proposed project would (a) divide an established community or conflict with existing land uses within the project's vicinity, such as agriculture resources; (b) conflict with the Eureka General/Coastal Plans designation, policies, and zoning ordinances regarding commercial facilities; (c) conflict with

applicable environmental plans and protection measures enforced by regulatory agencies that have jurisdiction over the project, such as habitat conservation plans or a natural community conservation plan.

Discussion:
The proposed subdivision complies with the City of Eureka general plan and zoning regulations, with the exception of a variance for lot depth that is needed for one proposed lot. The proposed extension of Lundblade Drive will provide for the orderly development of adjacent property.

The project is in compliance with the Eureka Municipal Code Zoning regulations **(§ 155.052)** which maintain that the RS-6000 or One-Family Residential Districts are included to:

(1) To reserve appropriately located areas for family living at reasonable population densities consistent with sound standards of public health and safety;

(2) To ensure adequate light, air, privacy, and open space for each dwelling;

(3) To protect one-family dwellings from the lack of privacy associated with multi-family dwellings;

(4) To provide space for semi-public facilities needed to complement urban residential areas and for institutions that require a residential environment;

(5) To minimize traffic congestion and to avoid the overloading of utilities by preventing the construction of buildings of excessive size in relation to the land around them;

(6) To preserve the natural beauty of hillsides and avoid slide and drainage problems by encouraging retention of natural vegetation and discouraging mass grading;

(7) To provide necessary space for the off-street parking of automobiles and, where appropriate, for the off-street loading of trucks;

(8) To protect residential properties from the hazards, noise, and congestion created by commercial and industrial traffic;

(9) To protect residential properties from noise, illumination, unsightliness, odors, dust, dirt, smoke, vibration, heat, glare, and other objectionable influences; and,

(10) To protect residential properties from fire, explosion, noxious fumes, and other hazards. ('63 Code, § 10-5.501)

The proposed use is considered a non-intensive, low impact use in regards to human density and traffic impacts. The proposed project complies with the lot area, setback, height and lot coverage requirements of the RS zone. In addition, the proposed project will provide the minimum required parking spaces for the proposed residences.

The subdivision requires a variance to allow Lot 170 to have a reduced lot depth of approx. 80-feet where the Code requires 100 feet; the parcel size of 7,826 sq. ft will exceed the minimum lot size of 6,000 sq. ft. This variance is needed due to the street configuration shown on the tentative map; a depth of 100 feet cannot be established for this lot. In addition, the project includes a lot line adjustment to take approx. 4660 sq. ft. from APN 301-031-039 and add it to APN 301-281-038. Findings necessary to approve a variance are listed in Eureka Municipal Code (§ 155.316 FINDINGS; CRITERIA FOR GRANTING VARIANCE)

The remainder parcel is located directly north of the proposed project area and includes land that is hillside, sloping down from the subdivision property, and nearly level land that is a valley floor. This land cannot be accessed from the proposed subdivision without significant difficulty. Access from Fairway Drive is relatively simple through adjacent land owned by one or more of the applicants. If the remainder were ever to be subdivided or developed with a residence,

access would be from Fairway Drive.

Based on the details above, staff concludes that the project is consistent with the Eureka General Plan and the Eureka Municipal Code and that there are no adverse impacts or conflicts between the proposed project and the existing general plan land use and zoning designations.

X. **MINERAL RESOURCES.** Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?			X	
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?			X	

Thresholds of Significance:
This Initial Study considers to what degree the proposed project would interfere with the extraction of commodity materials or otherwise cause any short-term or long-term decrease in the availability of mineral resources that would otherwise be available for construction or other consumptive uses.

Discussion:
Mineral resources used in connection with the proposed project are primarily limited to aggregate products (base rock, sand and gravel, portland and asphalt concrete) used for the construction of the buildings, utilities and road improvements. No mineral resources are known to exist on the project site. However, development of the project area will use mineral resources, i.e. gravel and paving. The amount used will be insignificant compared to the available resource.

There are no mineral extraction operations within the City of Eureka, most mining occurs in the unincorporated area of Humboldt County. Mining occurs in quarries and along most of the major rivers, including the Mad River, Van Duzen River, and the Eel River; the quantity of material mined annually fluctuates based upon demand. Although the precise quantity of mineral resources needed for this project is not known, it is clearly minimal compared to the approximately one million cubic yards of minerals mined in Humboldt County annually. Therefore, the proposed project will not result in the loss of availability of a state or locally known mineral resource.

XI. **NOISE.** Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?		X		
b) Expose persons to or generate excessive ground borne vibration or ground borne noise levels?		X		
c) Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?			X	
d) Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?		X		
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				X
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				X

Thresholds of Significance:
This Initial Study considers whether the proposed project would produce: (a) sound-pressure levels contrary to the City of

Eureka noise standards; (b) long-term ground vibrations and low-frequency sound that would interfere with normal activities and which is not currently present in the project area; (c) a substantial increase in ambient short-term or long-term sound-pressure levels; (d) changes in noise levels that is related to operations, not construction-related, which will be perceived as increased ambient or background noise in the project area.

Discussion:
Noise does not travel well, it has no staying power beyond that of its source, and it does not accumulate in the environment. Nonetheless, prolonged noise exposure is a serious threat to human health, resulting in high stress levels and impaired hearing. The highest noise levels generated by the project would result from use of heavy machinery during construction activities. Under the Noise Element of the adopted General Plan, general construction noise is considered acceptable because such noise, although loud and often annoying, is of limited duration and intensity. Limiting the hours of operation to normal work hours can mitigate the potential impacts resulting from increased noise during demolition and construction by reducing potential impacts to residential landowners in the vicinity who should expect relative peace and quiet in the evenings and on weekends. With mitigation to limit the hours of construction to normal work hours, the noise generated by construction activities, although temporarily increasing ambient noise levels in the project vicinity, will be reduced to a level that can be considered less than significant.

Since the site is surrounded on three sides by trees, the area is relatively quiet. Noise consistent with residential uses are heard along the West portion of the property. As the proposed project is developed, these sources of residential noise will be added to the site. Unusual sources of noise are not anticipated.

The project will require excavation of foundations and lots as well as other activities, which could result in groundborne vibration or noise. However, by limiting construction to daylight hours, Monday through Friday, it will reduce the exposure of persons to potential groundborne vibration and noise when it would be most annoying (evenings and weekends). Although the project could result in groundborne vibration or noise due to the excavation, the impact is short-lived and can be reduced to an acceptable level through limitation on construction hours. Therefore, the project as mitigated will not expose persons to or generate excessive groundborne vibration or groundborne noise levels.

Permanent, but insignificant increases in ambient noise levels will occur as a result of the project, primarily by expanding the overall use of the area to residential uses. The noise levels are not expected to exceed approximately 60 dB(A) Ldn at the edge of the property. The project is not expected to result in a substantial permanent increase in ambient noise levels in the project vicinity.

The project site is not located within Murray Field's Influence Area. The subject proposal in no way effects air traffic or creates a substantial safety risk to the public. An *Airport Influence Area* is defined as the area in which current and future airport related noise, overflight, safety, and/or airspace protection factors may affect land uses or necessitate restrictions on those uses.

Based on the discussion above, and with the recommended mitigation, staff concludes that the project will not result in any substantial adverse impacts with regard to noise. In addition, the proposed use will not expose people to excessive noise resulting from the airport or any other nearby uses.

MITIGATION MEASURE NO. 10.
Hours of construction activities shall be limited to daylight hours, generally from 8:00 a.m. to 5:00 p.m., Monday through Friday, the hours of construction may be allowed to be increased with prior approval from the City based on an expressed need by the contractor.

XII. POPULATION AND HOUSING. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (e.g., by proposing new homes and/or businesses) or indirectly (e.g., through extension of roads or other infrastructure)?			X	
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X

Thresholds of Significance:
This Initial Study considers to what degree the proposed project would result in, or contribute to, population growth, displacement of housing units, demolition or removal of existing housing units, or any project-related displacement of people from occupied housing.

Discussion:
Eureka was 'founded' in 1850 and incorporated in 1856. The 1860 population was approximately 615. By 1920 Eureka had a population of roughly 12,500. According to the City of Eureka's first General Plan, adopted in 1965, the population of Eureka in 1950 had grown to 23,058 and in 1960 it was 28,137. Based on data presented by the Center for Economic Development, California State University, Chico, the 1980 population was 24,350 and the population in 2002 was 26,050. This statistical data is provided to illustrate that Eureka's population growth over the past half-decade has been constant, regardless of the economic and population trends in the rest of the country. Therefore, it would take a remarkable project to induce 'substantial' population growth or decline, in Eureka.

The proposed lots will be similar or larger in size compared to adjacent parcels in Lundbar Hills. The proposed project is expected to be the last extension of Lundbar Hills by the owners. The proposed lots will be developed with residences that are similar to those currently found in Lundbar Hills, therefore the project is consistent with the neighborhood.

The proposed development of Lundbar #6 is not expected to induce growth. No housing will be displaced and no growth inducement will result from the project. Therefore, staff finds that the project will not result in substantial adverse impacts regarding population and housing.

XIII. PUBLIC SERVICES. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Fire protection?		X		
b) Police protection?			X	
c) Schools?			X	
d) Parks?			X	
e) Other public facilities?			X	

Thresholds of Significance:
This Initial Study considers to what degree the proposed project would result in any changes in existing fire or police protection service levels, or a perceived need for such changes, as well as any substantial changes in the need for, or use of, schools, parks, or other public facilities.

Discussion:
Fire protection and police services required for the proposed lots will be similar to those required for the previous units of Lundbar Hills. There will be an incremental increase in the need for these services.

The City of Eureka Fire Marshall has indicated that a second access to Lundbar Hills should be available for fire protection in any subdivision with over 25 units. Based on comments from the City Engineering Department, and based on studies by engineers for previous phases of Lundbar Hills, permanent secondary access is not feasible on the Barnum and Lundblade property. The Fire Marshall has agreed that the mitigation measures listed below meet the intent of the code requirements; with the mitigation measures, secondary emergency access is not required.

A reduction in emergency response plans or times is not expected to result from this proposal. The project will not result in an adverse alteration in police service for the area. Based on the above discussion, staff concludes the project will not result in an adverse impact on public services.

MITIGATION MEASURE NO. 11.
Installation of waterlines to the south property line sized to provide for services for the future extension of Lundblade Drive shall be constructed to the satisfaction of the City.

MITIGATION MEASURE NO. 12.
Continuation of Lundblade Drive to the south property line, constructed at the same width as previous units of Lundbar Hills shall be constructed.

MITIGATION MEASURE NO. 13.
Two additional fire hydrants, over the number specified by the Fire Marshall, shall be installed to the satisfaction of the City.

MITIGATION MEASURE NO. 14.
Each home shall have an NFPA 13D compliant automatic fire sprinkler system for the house and garage, installed to the satisfaction of the City Fire Department.

MITIGATION MEASURE NO. 15.
All construction will be provided with a Class A rated roof and roof assembly.

MITIGATION MEASURE NO. 16.
all construction shall have non-combustible siding.

XIV. RECREATION. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?			X	
b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?			X	

Thresholds of Significance:
This Initial Study considers to what degree any aspect of the proposed project would be related to the demand for recreational facilities or increase use of existing recreational areas such that those areas are physically degraded, including secondary effects such as degradation through over-use of environmentally sensitive areas.

Discussion:
The owners and developers dedicated a 1.26-acre neighborhood park for public use during Unit 4 of Lundbar Hills. This park provides a recreational area for future residences of this unit of Lundbar Hills. In addition, the City of Eureka currently maintains 13 City-owned parks comprising 136 acres. The proposed project is not expected to have any affect on parklands owned by the City or any other jurisdiction. Therefore, staff concludes that the project will not result in adverse impacts regarding recreation.

XV. TRANSPORTATION/TRAFFIC. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?		X		
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?			X	

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				X
d) Substantially increase hazards due to design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			X	
e) Result in inadequate emergency access?			X	
f) Result in inadequate parking capacity?			X	
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?			X	

Thresholds of Significance:
This Initial Study considers to what degree, if any, the proposed project would be associated with (a) changes in traffic, circulation, or other changes that might be perceived as adverse, including traffic effects resulting from temporary construction-related changes; (b) any project-related changes in levels-of-service on County or state highways; (c) project-associated travel restrictions that would prevent emergency vehicles from reaching the locations where they were needed.

Discussion:
A traffic study for Lundbar Hills was completed and updated for past phases of Lundbar Hills. This study has been updated for this proposed unit as well. Walter B. Sweet, Civil Engineer, concluded in a supplement dated July 13, 2005, that the proposed subdivision will not add a level of traffic that exceeds the capacity of the presently developed street system.

The proposed project was referred to and evaluated by the City's Traffic Operations Manager. Based on the type of use proposed, the traffic generated by the proposed use is considered minimal and insignificant.

Robert Burnett, Associate Civil Engineer, Humboldt County Public Works Department, states in his September 3, 2003 referral that the construction of a second access may not be necessary if Lundblade Drive is approved as primary access for this subdivision by the Fire Marshall of the City of Eureka; and, an amended traffic study approved by the City Engineer indicates that the intersection of Lundblade Drive and Fairway Drive has a proper design for visibility and meets the level of service adopted in the City General Plan.

TRAFFIC REPORTS AND ENGINEER COMMENTS.

The City's Engineering Department, Traffic Division specified that the following three recommendations should be included in the updated traffic analysis (Dan Moody) March 25, 2005:

1) The current and projected level of service at Harris & "F" and at Fairway & Lundblade (including cumulative impacts);

2) Sight distance analysis at Fairway & Lundblade; and

3) Queue length requirements for left turn lane from Fairway onto Lundblade.

Walter Sweet, of Sweet Civil Engineering, recommends in his July 13, 2005 traffic study that:

1) Lundblade drive be the principal street for all development of parcels through Unit 6. Local Streets can each serve a few blocks, which are directed to Lundblade Drive. Stop signs should be installed for local streets at intersections with Lundblade Drive, to encourage the use of Lundblade Drive for vehicles making trips longer than a few blocks. Right-of-way for Lundblade Drive should be 62 feet, and right-of- ways for local streets should be 50 feet. Right-of-way for Lundblade Drive should extend to the easterly limit of Unit 6, to allow vehicles access to other potential parcels.

2) The intersection of Lundblade Drive with Fairway Drive should be left as it is. Traffic flows can continue to be handled by the existing installation. A major consideration for this recommendation is the favorable accident record. As long as traffic continues to pass safely through this intersection, no changes should be implemented.

3) Trees along the 700-foot length of Lundblade Drive should be monitored for a potential to fall.

4) Development of periodic reviews and assessments of Fairway Drive traffic conditions, as may affect Lundbar Hills subdivisions entry and streets.

The layout of the proposed subdivision does not increase hazards to design features but is consistent with the overall plan. Circulation in and around the project has been evaluated. Roadway widths and radiuses were designed to accommodate the anticipated vehicular use of the facility. City Code Section 155.117(A) (1) dictates on-site parking requirements for one-family dwellings. Subsection (A)(1) requires two parking spaces for every one-family residential dwelling. Parcel size is sufficient to accommodate required parking. Compliance with parking regulations (two spaces per unit) will be met during development. See Section XIII Public Services for discussion on secondary access.

With the mitigation below there will be no significant impacts to traffic movements caused by this project.

MITIGATION MEASURE NO. 17.
Stop signs shall be installed for local streets at intersections with Lundblade Drive. Right-of-way for the new segment of Lundblade Drive shall be 62 feet, and rights-of- way for new local streets shall be 50 feet. Right-of-way for Lundblade Drive shall extend to the easterly limit of Unit 6.

XVI. UTILITIES AND SERVICE SYSTEMS. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?			X	
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			X	
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			X	
d) Have insufficient water supplies available to serve the project from existing entitlements and resources (i.e., new or expanded entitlements are needed)?			X	
e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?			X	
f) Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs?			X	
g) Violate any federal, state, and local statutes and regulations related to solid waste?		X		

Thresholds of Significance:
This Initial Study considers to what degree the proposed project would be related to: (a) a substantial demand for water supplies affecting existing entitlements and resources; (b) increase in runoff intensity that exacerbates drainage conditions and changes; and (c) insufficient provision for solid waste disposal.

Discussion:
The owners have installed utilities in previous phases of Lundbar Hills with sufficient capacity to provide services for the proposed subdivision. For example, the owners paid for a large transformer at the end of Unit 5 in order to provide for electrical services for the proposed subdivision. Water mains that have been installed previously were sized to provide service to the proposed subdivision. The owners constructed a 500,000 gallon water tank adjacent to this subdivision.

Sewer mains that have been installed previously were also sized to provide service to the proposed subdivision. The Golf

Course Lift Station that serves Lundbar Hills and adjacent areas is reported to be at or near capacity. There is a potential problem with storm water runoff entering the sewer system and dramatically increases the flows during storms. The City is currently working on corrective measures to increase the capacity of the lift station; which will assure that the subdivision can be accommodated within the system.

The City of Eureka's Elk River Wastewater Treatment Plant at 4301 Hilfiker Lane provides wastewater services for the City of Eureka. The wastewater system capacity is 32 million gallons per day (MGD), at an overall system peak wet weather flow. The current operating level is approximately 14.5 MGD. Based on the fact that the City's wastewater treatment plant is operating at less than half capacity, and the fact that the proposed project will not substantially increase the need for wastewater treatment, staff concludes that the project does not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board. Nor will it require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities.

The City of Eureka water supply system capacity is 8 MGD, and the current operating level is approximately 4.4 MGD. Water is purchased from the Humboldt Bay Municipal Water District and is piped from its original source, subsurface wells on the Mad River near Blue Lake, to Eureka's 20 million gallon storage reservoir. The capacity of the Humboldt Bay Municipal Waste District system is approximately 75 MGD (combined treated domestic and untreated industrial)) and the current operating level is approximately 40 MGD. There are no plans to expand water services as current operating levels are only around half of the system capacity levels. The proposed project will not require a substantial amount of water and therefore, will not adversely impact existing water supplies. It may be necessary to add an additional booster pump or to up-size the existing one in order to provide the minimum *gpm* and *psi* to the new lots.

Humboldt Waste Management Authority (HWMA) provides solid waste removal services. The HWMA has formulated a joint powers agreement with the County and most of the incorporated cities within the County for the disposal of waste. The HWMA has contracted with ECDC Environmental to ship solid waste produced in the County to state licensed land fills located outside of Humboldt County. Currently solid waste is trucked to Medford, Oregon to a new triple line state licensed landfill. Ultimately, solid waste will be shipped by rail to the State licensed Potrero Hills landfill in Solano County. Both of these landfills have excessive capacity and can accept the minimal amount of waste generated by this project. Solid waste will be collected and transferred to the HWMA transfer station for shipment to one of the landfills discussed above. The amount of solid waste generated by the proposed project will not significantly contribute to the waste stream volumes transferred out of the County, and based on information from the Potrero Hills landfill and the Medford, Oregon landfill, the project will not cumulatively result in amounts of waste that exceed the capacity of either landfill. Therefore, staff believes that the project will not be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs.

In order to assure that construction debris does not impact the solid waste provider or result in adverse environmental impacts, staff recommends a mitigation measure that requires that: No construction materials, debris, or waste be placed or stored where it may be subject to erosion and dispersion; Any and all debris resulting from construction activities shall be immediately removed following completion of construction; Concrete trucks and tools used for construction be rinsed at specified wash-out area(s); and Staging and storage of construction machinery and storage of debris not take place on any public street rights-of-way.

PG&E has requested that a ten foot wide public utilities easement be dedicated along all streets; that a five foot by ten foot PUE be dedicated on the east line of Lot 183 (at a point touching the southwest corner of the driveway access); and that a five foot by ten foot PUE be dedicated on the south line of Lot 218 (touching the driveway access). This can be handled as a condition of approval (Eureka Community Development Department, March 2005).

Based on the discussion above, staff concludes that the project will not result in any significant adverse impacts to utilities and service systems.

MITIGATION MEASURE NO. 18.

The applicant shall assure that no construction materials, debris, or waste be placed or stored where it may be subject to erosion and dispersion; Any and all debris resulting from construction activities shall be immediately removed following completion of construction; concrete trucks and tools used for construction be rinsed at the specified wash-out area(s); and staging and storage of construction machinery and storage of debris not take place

on any public street rights-of-way.

MITIGATION MEASURE NO. 19.
For potable water supply, if needed, the applicant will either add an additional booster pump or up-size the existing one in order to provide the minimum *gpm* and *psi* to the new lots to the satisfaction of the City Public Works and Engineering Departments.

XVII. MANDATORY FINDINGS OF SIGNIFICANCE.	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?			X	
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects).		X		
c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?		X		

Discussion:
As discussed above, the project, as mitigated, will not have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal species, or eliminate important examples of the major periods of California history or prehistory.

Also as discussed above, the project, as mitigated, will not have impacts that are individually limited, but cumulatively considerable, and will not have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly.

EARLIER ANALYSES

a) Earlier Analyses Used. The following document(s), available at the Community Development Department, have adequately analyzed one or more effects of the project. Earlier analysis may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration (CEQA Guidelines Section 15063 (c)(3)(D)). **N/A**

b) Impacts Adequately Addressed. The following effects from the above checklist were within the scope of and adequately analyzed in the document(s) listed above, pursuant to applicable legal standards. **N/A**

c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Incorporated," the following are mitigation measures that were incorporated or refined from the document(s) described above. **N/A**

SOURCE/REFERENCE LIST: The following documents were used in the preparation of this Initial Study.

1. California Department of Fish & Game, Wildlife & Habitat Data Analysis Branch. (August 23, 2005). California Natural Diversity Database. Sacramento: CDFG.
2. City of Eureka General Plan Background Study; February 1977.
3. Division of Mines & Geology, Special Publication 115, 1995.
4. Eureka Municipal Code, City of Eureka.
5. Flood Insurance Rate Map Community-Panel No. 060062005C, June 17, 1986.
6. Forsyth Engineering. Preliminary Drainage Study and Hydrology Report. July 2003.
7. Hickman, J.C., ed. (1993). *The Jepson Manual.* Berkeley: University of California Press Berkeley.
8. Humboldt County. Eureka Area Community Plan, w/ EIR
9. Institute of Transportation Engineers. (2000), *Trip Generation*, 7th Edition. NR: ITE. ---. (2002), *Transportation and Land Development*, 2nd Edition, Washington D.C.: ITE. ---. (1999), *Traffic Engineering Handbook*, Fifth Edition. Washington D.C.: ITE.
10. McGee, Liz. Listed Species Analysis for Lundbar Hills #6. June 16, 2006.
11. Murray Field Airspace Plan; Hodges & Shutt; April 1999.
12. National Oceanic and Atmospheric website: www.wrh.noaa.gov/climate/local_data
13. SHN Consulting Engineers & Geologists, Inc., R-1 Preliminary Engineering Geologic and Geotechnical Investigation. August 2002.
14. Sweet, W.B. 2005, Traffic Study for Lundbar Hills, Southwoods Subdivision #6
15. Tibor, David, P., ed. (2001). Inventory of Rare and Endangered Plants of California, 6th Edition; Special Publication No. 1. Sacramento: California Native Plant Society.
16. Transportation Research Board. (2000), *Highway Capacity Manual,* 2000 Edition, Washington D.C.: TRB.

RECEIVED
JUL 28 2005
DEPARTMENT OF
COMMUNITY DEVELOPMENT

July 20, 2005

Mr. C. Robert Barnum
BARNUM TIMBER COMPANY, INC.
1610 Highland Ave.
Eureka, CA 95501

RE: WETLAND INVESTIGATION AND POTENTIAL IMPACT ASSESSMENT ON LUNDBAR HILLS SUBDIVISION

Dear Mr. Barnum:

On July 10, 2005 a biologist from Eel River Sciences conducted a wetland reconnaissance investigation on Unit 6 of the Lundbar Hills Subdivision in Eureka, California (SE 1/4 of Sec 3, Township 4N, Range 1W, H.M.). The methods employed, reconnaissance findings and potential impacts are described below.

Methods utilized during this investigation include a preliminary resource review and on-site visit. This method provides generalized and approximate information based on a brief site investigation and land survey and is not intended to produce a map showing exact wetland locations or boundaries. This information can be used to assist in determining the sites initial development feasibility and be used by regulatory authorities in conjunction with permit applications.

Review of existing resource information was conducted for the study area in order to identify known wetland areas or environmental characteristics that indicate potential wetland conditions. Resource information included the National Wetland Inventory (NWI) map, a tentative parcel map, topographic surveys, a geotechnical report, a preliminary drainage and hydrology report, and Soils of Western Humboldt County. During the on-site investigation a qualified wetland biologist walked through the subject property to confirm the presence or absence of wetlands and site conditions. General field observations of vegetation, soils and hydrology were noted.

The subject property is approximately 19 acres and located at the easterly end of Lundbar Drive. It is situated on a broad ridge of timberland running generally east-west; westerly towards Fairway Drive and easterly towards Ridgewood Drive in Cutten. The ridge top slopes predominantly north towards a drainage gulch and eventually into Martin Slough. To the west of the subject property are the single family residences of Lundbar Hills. To the north and east is relatively steep timberland and to the south is recently cutover timberland.

This property has been used for growing and harvesting trees. It has been logged twice in the last 60 years and is lightly stocked with trees. The canopy is predominantly redwood with a smaller component of Douglas fir, Sitka spruce, red alder, and Monterey pine. The gulch that drains surface water down towards Martin Slough supports a similar canopy. The upper reaches of this gulch and adjacent ridge top has been severely impacted due to logging activities, grading and dumping urban materials. These materials include spoils, yard waste, stumps, appliances, abandoned vehicles and trash.

The ridge top is predominantly an uplifted marine terrace remnant. These terraces have developed in response to historic sea level fluctuations and seismic uplift. They consist of poorly consolidated sands, silts, clays and gravels and are typically less than 30 feet thick. These terraces overly sediments of the Hookton formation. The Hookton formation is of similar origin as the overlying marine terrace deposits, and it is difficult to distinguish the two. Hookton sediments are described as well to poorly sorted loose marine sands, gravel, and silt. Hookton soils are generally present on hill slopes and ravines and are not classified as hydric soils.

Hydrology on the ridge top is directly influenced by runoff from precipitation. During the rainy season most of the surface water flows north towards the drainage gulch leading to Martin Slough. All of this area seems to drain well except for the disturbed area in and around the upper reach of this gulch. Here surface water seems to pond in small low areas of disturbed soils and in abandoned 4-wheel drive trails or logging tracks. No water was observed during the on-site investigation.

The federal manuals state that wetlands posses three essential characteristics: (1) hydrophytic vegetation; (2) hydric soils; and (3) wetland hydrology, which is the driving force of all wetlands. The NWI map did not identify any wetlands on the subject property. Field observations identified the area at the bottom of the gulch supports all three characteristics and would be classified as scrub-shrub and emergent marsh wetland. The area at the top of the gulch does support small isolated pockets of surface water during the rainy season but is also littered with urban fill, which is not a hydric soil. Therefore the upper reaches of his gulch is a highly disturbed, graded and filled area and should not be considered a jurisdictional wetland.

The tentative map identifies that no development impacts will occur in the gulch or down slope and into the wetland area. The extension of Lundblade Drive includes development of a subterranean detention structure which will occur on the extreme upper reaches of the gulch. This gulch functions primarily as a surface water conveyance system to lower elevation wetlands. Past logging and grading has severely impacted the function in the upper reaches of this gulch and as a result excessive sediment loads are being transported downstream. Construction of the road and detention facility will include sediment control measures (rock energy dissipaters, rock check dams, etc.) that will provide a more stable and functioning gulch and ensure protection from sedimentation to downstream wetlands. With implementation of proper construction methods any development associated with the extension of Lundblade Drive should offset these impacts and create an improvement to the natural drainage course which would result in less than significant impacts to the immediate area and downstream wetlands.

Eel River Sciences has enjoyed assisting you with this project. Should you have any questions or do not fully understand our report, please feel free to give me a call.

Sincerely
Eel River Sciences

Reid Storre
Wetland Biologist

R-1 Preliminary Engineering Geologic and Geotechnical Investigation

Proposed Addition to the Lundbar Hills Subdivision

Prepared for:

Ron Lundblade

Consulting Engineers & Geologists, Inc.
812 W. Wabash
Eureka, CA 95501-2138
707/441-8855

August 2002
002185

CONSULTING ENGINEERS & GEOLOGISTS, INC.
812 W. Wabash • Eureka, CA 95501-2138 • 707-441-8855 • Fax 707-441-8877 • info@shn-eureka.com

Reference: 002185

August 27, 2002

Mr. Ron Lundblade
P.O. Box 3597
Eureka, California 95502

Subject: **R-1 Preliminary Engineering Geologic and Geotechnical Investigation, Proposed Addition to the Lundbar Hills Subdivision, A.P. 301-031-39, Off the East End of Lundblade Drive, Eureka, California**

Dear Mr. Lundblade:

The enclosed report documents the results of our investigations for your proposed project. In the report we discuss geotechnical site characteristics and risks, and provide specific recommendations for site preparation, and design and construction of foundation and floor slab systems for the proposed residential subdivision.

This report concludes our work on the project in accordance with our current agreement. If you have any questions, please call either of us at 707/441-8855.

Sincerely,

SHN Consulting Engineers & Geologists, Inc.

David R. Bradley, P.E.
Geotechnical Engineer

Gary Simpson, C.E.G.
Engineering Geologist

DRB:GDS:med

Enclosure

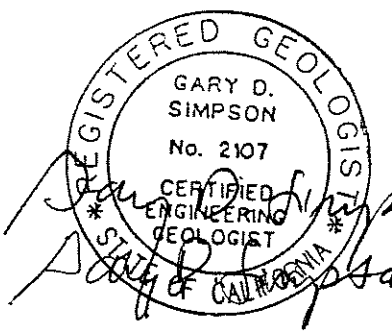
Reference: 002185

R-1 Preliminary Engineering Geologic and Geotechnical Investigation

Proposed Addition to the Lundbar Hills Subdivision A.P. 301-031-39, Off the East End of Lundblade Drive Eureka, California

Prepared for:

Ron Lundblade



Prepared by:

CONSULTING ENGINEERS & GEOLOGISTS, INC.
812 W. Wabash Ave.
Eureka, CA 95501-2138
707/441-8855

August 2002

QA/QC:DRB drb

Table of Contents

Introduction

This report documents the results of SHN's geotechnical investigations conducted during June and July 2002, at the subject site.

The subject site consists of an approximately 14-acre portion of a larger parcel, on which an approximately 50- to 60-parcel residential subdivision with appurtenant streets is proposed. The parcels will be created for construction of one to two story single-family residences, and is in design development.

As with previous units of the subdivision, existing trees and vegetation will likely be removed from the areas to be developed. Development will occur at approximate existing grades. Site grading will be required to remove existing spoil fill mounds toward the northwest corner of the subdivision, and we understand the spoil fill will be spread thinly across mildly to moderately sloping portions of the subdivision, outside of areas to support structures. We understand other significant cutting and filling is not anticipated.

This report is intended to provide the owner with findings, conclusions, and recommendations related to geotechnical aspects of project design and construction. The recommendations contained in this report are subject to the limitations presented herein. Attention is directed to the Construction Phase Monitoring and Limitations sections of this report.

For purposes of submission of this report to Humboldt County building and planning officials, the words "Geotechnical" or "Geotechnical Report" herein can be considered synonymous with "Soils" or "Soils Report."

Field Investigation and Laboratory Testing

SHN conducted preliminary geologic and geotechnical investigations to evaluate site geologic and subsurface soil conditions, and to provide foundation design and site development criteria for the project. Our field investigations were limited to geologic and geotechnical reconnaissance of the project site, supervising the excavation and sampling of 27 subsurface exploration test pits, and establishing a setback line from steeper slopes.

The exploratory test pits were advanced to maximum depths of 8 feet below the ground surface. The test pits were logged in general accordance with the Unified Soil Classification System. (See Figure 1 for test pit locations, and Appendix A for Subsurface Exploration Logs.) The test pits were advanced using a backhoe.

Selected undisturbed samples were collected, and laboratory tests were conducted. Laboratory testing for index properties included in-place moisture content, dry density, unconfined compressive strength by pocket penetrometer, and percent fines.

See the attached Subsurface Exploration Logs for detailed soil descriptions, and laboratory index test results.

The slope setback line was staked in the field, and its location then surveyed by Kelly-O'Hern Associates of Eureka. Its surveyed location is indicated on the attached Site Plan, Figure 1.

Geotechnical Site Conditions

Surveyed site topography is indicated on the attached Site Plan. Around the perimeter of the site, where topography is not shown on the Site Plan, and no residential development is planned, steep slopes generally exist.

The entire site is forested, with the exception of a previously cleared or former grassland area in the northwest corner of the site. Spoil fill mounds from previous phases of subdivision construction have been placed over much of this cleared area, particularly north of Lundblade Drive.

The slope setback line shown on the Site Plan outlines a mildly to moderately sloping ground area in which the residential development is planned.

Past logging and development activities have previously resulted in fill, including tree stumps, being placed at some locations onto the existing steeper sideslopes around the perimeter of the proposed development area. We understand that some fill has been excavated and removed from steeper sideslopes in one area near the northwest corner of the site.

Specific descriptions of the soils encountered by the 27 test pits are presented on the attached subsurface exploration logs. In general, soils encountered in the 27 test pits scattered across the development area are predominately competent cohesive, clayey silts to generally cohesive silty or clayey sands, typically overlain by native topsoil, and by uncontrolled fill at some locations. Where past grading has not significantly disturbed the ground surface, test pits encountered darker-colored, root-bearing topsoil which varied from 0.5 to 1.5 feet in thickness. In summary, beneath existing uncontrolled fills at some locations, and beneath native topsoils, relatively competent (strong and compact) soils were encountered.

No groundwater seepage was observed entering the test pits during the short time period they were open, and no springs were observed in the mildly to moderately sloping area to be developed. Springs (surface emergent groundwater) as evidenced by flowing surface water and lush phreatophytic vegetation, do exist in the steeper slopes bordering the area to be developed. Water levels at other times of year can be expected to fluctuate in response to seasons, storm events, and other factors, and may become significantly higher or lower than indicated by our field observations early in the dry season.

Lightly to heavily mottled soil coloration was observed in near-surface soils encountered in Test Pits TP-18 and TP-19, excavated in an apparent poorly drained swale area. The heavily mottled soil coloration may indicate an area in which groundwater rises essentially to the surface during the wet season. Another relatively level area is in the vicinity of TP-24, which also encountered lightly to heavily mottled soils.

The project area is subject to strong seismic ground motion, and is in Seismic Zone 4, with a Seismic Zone Factor of 0.4, per Figure 16-2 and Table 16-I of the 1997 Uniform Building Code (UBC), (ICBO, 1997). The site is located about 2.5 miles (4 kilometers) northeast of the surface trace of the Little Salmon fault, however, the Little Salmon fault dips to the northeast, and passes less than 2.0 kilometers (Km) below the site. It is shown as within 2 Km of a Type A earthquake fault (the Little Salmon fault) based on the 1997 UBC .Maps of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada." Near-source factors N_a and N_v of 1.50 and 2.00, respectively, from Tables 16-S and 16-T are indicated. We estimate a soil profile type S_D for the site.

Geologic Setting

Regional Geology

The site is located on an uplifted late Pleistocene age marine terrace remnant. In the Eureka area, as along much of the coastline in the region, sequences of late Pleistocene age marine terraces have developed in response to Pleistocene age sea level fluctuations and regional uplift. These terraces consist of planar abrasion platforms overlain by marine deposits typically consisting of poorly consolidated sands, silts, clays, and gravels. Terrace deposits are typically less than about 30 feet thick. The age of the marine terrace surface (or surfaces) underlying Eureka is not well constrained, but is at least 64,000 years old, the age of the youngest emergent marine terrace typically preserved along the California coast. Preliminary mapping based on terrace distribution and spacing, as well as limited soils data, suggests the marine terrace at the Lundbar Hills development site is 120,000 years old (i.e., "Fox Farm terrace" in Carver and Burke, 1992). The terraces in the Eureka area lie in the hanging wall above the Little Salmon fault, and have been broadly deformed by tectonic movement.

The marine terraces in the Eureka area are relatively thin and overlie sediments of the middle Pleistocene age Hookton formation. The Hookton formation is of similar origin (i.e., shallow marine) as the overlying marine terrace deposits, and it can be difficult to distinguish the two. Hookton formation sediments are described as well to poorly sorted, loose marine sands, gravel, and silt. The contact between the Hookton formation sediments and the overlying marine terrace sediments is not mapped, but is likely present on hillslopes within the ravines below the proposed development.

Mass wasting (i.e. landsliding) processes that affect hillslopes in the project vicinity are characterized by shallow debris slides and translational failures. Two areas of recent sliding were noted in the site vicinity during our field reconnaissance, and are shown on the Site Plan (Figure 1). Under natural, unaltered conditions, this type of failure occurs when sufficient colluvial material accumulates in a swale or hollow and a significant storm delivers enough concentrated rainfall to raise pore pressures to a critical failure threshold (i.e., soil shear strength is reduced enough to initiate failure). The recent debris slide mapped in the northeast corner of the site appears to represent this type of naturally occurring failure. Deeper-seated failures may occur where an impermeable stratigraphic horizon (i.e., clay layer) retards the infiltration of groundwater. Sediments within the profile above the impermeable layer can become super-saturated to the point that relatively deep-seated failures can develop. Additionally, many slope failures in the project area have historically occurred when alterations are made to the natural condition. These failures have typically occurred due to surcharge fill loading and/or construction on uncontrolled fill. The slide near the water tank in the southwest corner of the project area appears to have occurred in part due to fill loading associated with site grading.

Seismic Setting

The project site is located in a region of high seismicity. Over sixty earthquakes have produced discernible damage in the region since the mid-1800s (Dengler et al., 1992). Historic seismicity and paleoseismic studies in the area suggest there are six distinct sources of damaging earthquakes in the Eureka region (see Figure 2): (1) the Gorda Plate; (2) the Mendocino fault; (3) the Mendocino Triple Junction; (4) the northern end of the San Andreas fault; (5) faults within the North American Plate (including the Mad River and Little Salmon fault zones); and (6) the Cascadia Subduction Zone (Dengler et al., 1992).

The Cascadia Subduction Zone represents the most significant potential earthquake source in the north coast region. A great subduction event may rupture along 200 km or more of the coast from Cape Mendocino to British Columbia, and may generate an earthquake up to magnitude 9.5. The April 25, 1992 Petrolia earthquake (magnitude 7.1) appears to be the only historic earthquake involving slip along the subduction zone, but this event was confined to the southernmost portion of the fault. Paleoseismic studies along the subduction zone suggest that great earthquakes are generated along the zone every 300 to 500 years. A great subduction earthquake would generate long duration, very strong ground shaking throughout the north coast region.

As discussed above, the site is located about 2.5 miles (4 kilometers) northeast of the surface trace of the Little Salmon fault. The Little Salmon fault appears to be the most active fault in the Humboldt Bay region, and is capable of generating very large earthquakes. The fault strikes northwesterly, and dips to the northeast, beneath the site. Offset relations within the upper Wildcat Group suggest vertical separation exceeds 5,900 feet (1,800 meters), representing about 4.4 miles (7 km) of dip-slip motion on the Little Salmon fault since the Quaternary (i.e., in the past 700,000 to 1 million years). Paleoseismic studies of the Little Salmon fault indicate that the fault deforms late Holocene sediments at the southern end of Humboldt Bay (Clarke and Carver, 1992). Estimates of the amount of fault slip for individual earthquakes along the fault range from 15 to 23 feet (4.5 to 7 meters). Radiocarbon dating suggests that earthquakes have occurred on the Little Salmon fault about 300, 800, and 1,600 years ago. Average slip rate for the Little Salmon fault for the past 6,000 years is between 6 and 10 mm/yr. Based on currently available fault parameters, the maximum magnitude earthquake for the Little Salmon fault is thought to be between 7.0 (CDMG/USGS, 1996) and 7.3 (Geomatrix Consultants, 1994).

Conclusions and Discussion

Geotechnical

Based on the results of our field and laboratory investigations, it is our opinion that the project site can be developed as proposed, provided that our recommendations are followed, and that noted conditions and risks are acknowledged.

The primary geotechnical site considerations are adequate setbacks from steeper sideslopes that may be unstable, management of excess soil moisture where residences may be developed in relatively low-in-elevation, poorly drained areas, and deeper required foundations or soil remediation that may be required where upper soils were disturbed and loosened by removal of tree stumps and their major root systems.

The slope setback line indicated on the Site Plan was established in the field with concurrence from both a Geotechnical Engineer and an Engineering Geologist. The intent of the line is to demark areas that can be developed utilizing typical Building Code foundation criteria, at a low risk of slope instability from either creep or landsliding associated with the site's steeper sideslopes. Recommendations are made to limit the proposed residential foundations to locations behind the setback line, unless site-specific additional geotechnical/geologic investigations are made for a subject parcel. A low risk of slope instability is considered generally suitable for conventional residential structures, provided the mandates of the currently-in-use edition of the Uniform Building Code are followed. Development in the low slope stability hazard area within the slope setback line is not expected to contribute to, or be subject to substantial geologic hazards throughout the economic life span of the project, provided that our recommendations are followed.

Recommendations are provided below for residential construction utilizing typical shallow foundations and slab-on-grade, or structurally supported, floor systems. Subdrains and underdrains for control of potential excess soil moisture conditions are recommended for residences under certain conditions. Raised building pads or perimeter subdrains are recommended for the two Groundwater Mitigation areas indicated on the site plan.

No high plasticity clayey soils strata were encountered, or are generally anticipated in the marine terrace sediments underlying the site, and risk of adverse consequences to the structure from expansive soils is considered low. As a precaution, however, recommendations are provided for geotechnical engineering review of the foundation excavations prior to pouring the foundations, so that the anticipated absence of high-plasticity, potentially expansive soils can be confirmed.

In our opinion, the risk of significant post-construction settlement will be mitigated to a low level if the recommended site preparation is completed, and if the structures are supported on conventional shallow foundations. Due to the variability of soils deposits and the inherent limitations of current engineering and construction practices, some post-construction vertical settlement may occur. We estimate that with the project constructed in accordance with the following recommendations, total post construction settlement is not likely to exceed one-half inch, and post-construction differential settlement is not likely to exceed one-quarter inch.

Engineering Geologic

The risk associated with liquefaction and other secondary seismic effects is low at the subject site. The liquefaction potential for the site appears negligible because the earth materials underlying the site are not typically susceptible. Test pits at the site encountered mostly clayey silts and sands, with minimal amounts of clean sand or silt, the most susceptible earth materials to liquefaction. Soil deposits most susceptible to liquefaction are geologically recent, saturated, low density, low cohesion sediments or man made fill deposits, located adjacent to streams, rivers, bays, or beaches. These materials or conditions are not present within the project site. The late Pleistocene terrace deposits present at the site are typically too old to lose shear strength during earthquakes because of the accumulation of clays that develop in soil profiles, and the general consolidation of the material.

Seismogenic effects at the site are likely to be limited to earthquake-induced landsliding along the hillslopes bordering the project area. Impacts associated with these failures are likely to be mitigated by the slope setback discussed above, but we cannot preclude that larger, deeper-seated failures may develop if a very large earthquake occurs, particularly during the rainy season. An additional margin of safety to mitigate this low probability event can be established by locating structures further from the setback line.

Geotechnical Recommendations

1. Site Preparation and Grading

In the following recommendations, "compact" and "compacted" refer to obtaining a minimum of 90% of the maximum relative dry density as referenced to the ASTM D1557-91 test method.

We recommend the following:

a. As appropriate, notify Underground Service Alert (1-800-642-2444) prior to commencing site work, and use this location service and other methods to avoid injury or risk to life from underground and overhead utilities, and to avoid damaging them.

b. Strip all existing cultural debris, vegetation, root-systems, dark-colored organic-rich topsoil, and uncontrolled existing fill from areas to receive structural fill or improvements, and for three feet outside. Where trees are removed, additionally remove their major root systems. Additionally, excavate as required to accommodate design grades and planned minimum fill or pavement section thicknesses.

c. Do not place spoil fill generated by the stripping operations, or any other fill, onto site areas outside the slope setback line indicated on the Site Plan, unless such placement is concluded to be allowable following a site-specific additional geotechnical/geologic investigation addressing the proposed fill placement in that area. Where uncompacted spoil fill is to be placed on mildly sloping ground, strip all vegetation from the site surface, and follow the placement recommendations for spoil fill in Item "j" below. For placement of structural fill to support structures or improvements, follow the recommendations in the following itemized paragraphs.

d. With the exception of vertical sides or steps, subgrade surfaces to receive structural fill to support structures or improvements should be cut-graded to slope no steeper than 10 percent.

e. Conduct a geotechnical engineering review of exposed subgrade surfaces. The geotechnical engineer will recommend that remaining unsuitable soils, such as overly weak, compressible, or disturbed soils, be additionally stripped. Where tree stumps were removed, excavate any loosened soils by the removal, so that firm, undisturbed subgrade is exposed.

f. Scarify and compact the upper six inches of exposed subgrade soils which are to receive structural fills. Alternatively, the subgrade surface may be proofrolled using a 10 wheel, 10 cubic yard dump truck loaded with soil, or equivalent. The proofrolling should be accomplished under the observation of the geotechnical engineer with the soil damp or moist (not wet or dry), and a firm, non-yielding surface should be evident during the proofrolling. If a yielding surface is observed (pumping, weaving under wheel loads), additionally excavate the yielding area, and replace the over-excavated material with Caltrans specification Class 2 baserock, in a manner that will result in a stable subgrade surface under the proofrolling, following the overexcavation and replacement.

g. Structural fill material should consist of relatively non-plastic (Liquid Limit less than 35, Plasticity Index less than 12) material containing no organic material or debris, and no individual particles over 6 inches across. We suggest the use of granular soils (sand, gravel) for fill, because these soils are relatively easy to moisture condition and compact.

h. Structural fill should be placed to design grades and compacted to a minimum of 90% of the maximum relative dry density as determined by the ASTM D1557-91 test method.

i. Cut and fill slopes up to 6 feet in height should be placed no steeper than 1-1/2 to 1 and 2 to 1 (horizontal to vertical), respectively. Higher or steeper slopes should be reviewed by this office for stability.

j. For placement of spoil fill, select site areas not planned for structures or improvements, The areas to receive spoil fill should slope at 12% or less in gradient. Strip vegetation from the site surface, and place spoil fill not exceeding 2 feet in depth. As a minimum, moderately compact the fill until firm by wheel rolling or track walking, with equipment at least as heavy as a full sized backhoe, in lifts not exceeding one foot in thickness, and with the soils in a damp or moist (not dry or wet) condition. Remove all cultural debris (wood, metal, plastic, glass, sheetrock, etc) from the fill to be placed. Spoil fill placed as recommended will erode easily, and should be protected from concentrated flows of surface water. If erosion occurs in the spoil fill, sediment will be generated. Spoil fill placement may also divert or otherwise alter existing surface runoff. Spoil fill placement should be planned and accomplished in a manner that will not result in adverse erosion, sedimentation, or site surface drainage effects.

2. Foundations

Following site preparation as recommended, foundations may be constructed. Foundations should be sized, embedded, and reinforced to at least the minimums presented in the current edition of the Uniform Building Code. The recommendations provide for foundations to be supported by competent, undisturbed native subsoils, or by structural fill placed onto competent native subsoils. Such foundations may be designed so they do not exceed an allowable bearing capacity of 1500 pounds per square foot (psf) for dead plus live loads. These values may be increased by one-third to account for the short-term effects of wind and/or seismic loading.

The bearing pressure values may be increased for increases in footing depth as provided in the current edition of the Uniform Building Code. The provided bearing values are applicable to both competent, undisturbed, native subsoils, and structural fill placed as recommended.

A friction coefficient of 0.3 may be used for the footing/soil contact, in conjunction with an allowable lateral passive pressure represented by an equivalent fluid weighing 200 pounds per cubic foot (pcf) for short term loadings, such as lateral foundation resistance in response to wind or earthquake loadings.

The ground surface around the structure perimeter should be sloped away, or other design measures implemented to provide positive surface water drainage away from perimeter foundation areas.

If the project includes depressed crawl spaces below exterior grade elevation, subdrains are recommended to prevent excess moisture problems. Additionally, if depressed crawl spaces are constructed, we recommend that positive surface drainage be provided so surface water can drain from them instead of ponding. Subdrains are also recommended if slabs on grade are low in elevation with respect to exterior grade, and for residences constructed in the two Groundwater Mitigation Areas indicated on the Site Plan. Subdrain recommendations and criteria are presented under "Subdrains" and "Slabs-on-Grade" below.

3. Slabs-on-Grade

Following site preparation and grading as recommended, slabs-on-grade may be constructed. If the project includes slab-on-grade construction where the finished slab grade is one-half foot or less above exterior grade elevation, we recommend shallow subdrains be installed around

the perimeter foundations, as recommended below under "Subdrains." In habitable areas, any soil supported floor slabs that are one or more feet below planned exterior grade (depressed floor slabs) should be provided with a "blanket" underdrain system. Specific recommendations for underdrainage for depressed floor slabs should be made following review of specific plans and grades on a site by site basis.

High plasticity, potentially expansive soils should not underlie slabs, and should be removed and replaced if encountered. None are anticipated. As a precaution, subgrade soils to support slabs should be reviewed along with foundation excavations for the unanticipated, but possible presence of, high plasticity clayey soils.

Concrete slabs can become damp from capillary water migration. As a precaution to minimize transmission of soil moisture up through floor slabs in habitable areas, or other areas where damp slabs should be avoided, we recommend that the slabs be underlain by an impermeable polyethylene membrane at least six mils in thickness. This membrane should overlie a capillary break consisting of a 4 inch layer of No. 4 U.S. Sieve (0.187 inch) minimum, up to 1 inch maximum, gravel, or Class 1 Type A permeable material per Caltrans Standard Specifications 68-1.025. A thin layer of clean sand may be placed over the membrane to protect it during concrete placement. (The capillary break provides a layer with relatively large, intergranular, void spaces, which inhibit capillary rise of ground moisture or "wicking.")

4. Retaining Walls

Retaining walls should be designed to resist active lateral soil pressures represented by an equivalent fluid weighing 35 pcf (pounds per cubic foot) for cantilevered walls (capable of tilting), and 60 pcf if they are non-cantilevered walls (structurally restrained from tilting), provided the walls are backdrained as recommended below, and provided the ground surface behind the wall slopes at 10 percent or less for a horizontal distance equal to at least 2/3 the height of retained soil. For more steeply sloping backfill, up to a maximum slope of 2:1 (horizontal to vertical), design the walls to resist an active lateral soil pressure represented by an equivalent fluid weighing 50 pcf for cantilevered walls (capable of tilting), and 75 pcf if they are non-cantilevered walls (structurally restrained from tilting), or, specific analysis and recommendations can be made. For backfill sloping more steeply than 2: 1 (horizontal:vertical), or for cases in which the surface of the backfill behind the wall is to be loaded, specific analysis and recommendations should be made.

All retaining wall foundations should be embedded into competent, undisturbed native soils, or structural fill placed in accordance with the grading recommendations. (Existing or proposed spoil fill is not suitable for support of retaining wall foundations.) Lateral forces can be resisted by the passive pressure exerted on the side of the footing and by friction along the base. The passive pressure can be taken as that pressure exerted by an equivalent fluid weighing 150 pounds per cubic foot (pcf) for the steady state lateral loadings that will be applied by the retaining wall foundations, which can be increased to 200 pcf under dynamic loadings including earthquake forces. The friction coefficient may be taken as 0.3. The footings for the walls should be embedded a minimum of 18 inches into the site's competent soils, beneath any unsuitable surficial soils.

The design active soil pressure presented above is predicated on positive drainage being provided behind the retaining walls, to avert potential hydrostatic pressure build-up. We suggest that a perforated pipe/drainrock backdrain system be placed behind the wall, with the

drainpipe near the bottom of the wall, and with the drainrock extending up to within two feet of finished grade. This backdrain system should be encased in filter fabric, and have a gravity drainage outlet. Alternatively, commercially available drainage matting (consisting of an outer filter fabric layer, a spacing layer to allow water drainage, and an inner, impermeable or filter fabric, layer) may be placed behind the wall in accordance with the manufacturer's recommendations and should be gravity drained by a discharge pipe.

Where a retaining wall forms the wall of a habitable or dry storage area, control of moisture is important, and the back of the wall should be waterproofed using established methods and materials, as well as installing backdrainage as recommended above. The wall backdrain and waterproofing should be constructed down to the elevation of the base of the footing comprising the heel of the wall.

For backdrain filter fabric, use 6-ounce per square yard minimum weight, non-woven, geotextile fabric by a reputable manufacturer, specifically designed for the purpose of allowing water passage while retaining soil materials.

For backdrain permeable material, use free draining, durable, granular material, 100 percent passing the 1-1/2 inch sieve, and not over three percent passing the No. 10 sieve. Washed pea gravel, or drainrock as commonly used for septic leachfield applications should qualify as permeable material.

Perforated pipe should be durable, and at least three inches in minimum diameter. Holes or slots should be matched to surrounding permeable material such that the finer particles do not enter the pipe during or subsequent to installation.

To avoid settlement of the backfill, backfill should not be undercompacted. To avoid excess pressure against the wall, backfill should not be overcompacted. We recommend backfill within three feet behind the walls should be compacted to between 85 and 90 percent of the maximum relative dry density as determined by the ASTM D1557-91 test method, and backfill further from the wall should be compacted to a minimum of 90% per ASTM D-1557. Backfill consisting of relatively "impermeable" soil, at least 1.5 feet thick, should be placed above the permeable backdrain to prevent infiltration of surface water. This "impermeable" backfill should consist of compact clayey or silty soil, but should not be expansive (the Liquid Limit should not exceed 35, and the Plasticity Index should not exceed 20). Alternatively, competent asphalt or concrete pavement may be substituted for the "impermeable" backfill.

The surface should be sloped such that runoff is not allowed to pond above the backdrain system. All surface runoff conveyance systems (including rooftop downdrains) should be isolated from the backdrain systems, and provided with positive gravity flow discharge.

5. Subdrains

If finished floor slabs are to be less than one-half foot in height above average exterior finished grade, or if depressed crawl spaces are used, where crawl space grade lies below average exterior finished grade, we recommend a subdrain be installed around the perimeter of the residence. The perimeter subdrain should be located within five feet outside the perimeter foundation. The subdrains should extend to a minimum of three feet below finished grade, and a minimum of two feet beneath the finished slab grade, whichever is deeper. In the case of depressed crawl spaces, they should additionally extend to at least one foot below the crawl

space elevation. Where perimeter subdrains are installed, they should be designed such that the subdrain trench excavation does not intersect a hypothetical support prism of soil beneath any foundation, as defined by lines sloping outward and downward from any point on the perimeter of the foundation base at slopes of 1:1 (horizontal:vertical). If they do, deepen the foundation at that location. On certain parcels, where perimeter subdrains are constructed as recommended in the following paragraph to reduce risk from potentially high groundwater conditions, subdrains as recommended in this first paragraph under "Subdrains" are not required.

For residences to be constructed in the two Groundwater Mitigation Areas indicated on the Site Plan, or at any residence location where footing excavations may disclose strongly mottled or gleyed (typically white, green, or blue) soil colorations, high groundwater conditions during the wet season are considered likely. In the Groundwater Mitigation Areas, or where footing excavations disclose strongly mottled or gleyed soil colorations, we recommend either building up the building and appurtenant structure sites with structural fill so that the building pad is at least one foot minimum above highest adjacent finished exterior grade, or, a perimeter subdrain should be installed. Perimeter subdrains should extend to a minimum depth of five feet below the existing ground surface around the uphill sides of the residences, and a minimum of three feet below the existing ground surface around the downhill sides of the proposed residences on these parcels. They should be constructed within 10 feet of the residence perimeter, and should be designed such that the subdrain trench excavation does not intersect a hypothetical support prism of soil beneath any foundation, as defined by lines sloping outward and downward from any point on the perimeter of the foundation base at slopes of 1:1 (horizontal:vertical). These subdrains should be gravity drained to daylight, or to the storm drainage system for the project, provided a backflow preventer is included if necessary to stop water building up in the storm drain system from flowing into the subdrain system. If grades do not allow gravity drainage, subdrains should be drained to a sump pump, which discharges any collected water from the subdrain to daylight, or to the project storm drainage system.

Construction of subdrains early in the construction sequence may facilitate remaining construction, and may mitigate cut slope instability hazards.

We recommend a system of perforated pipe, permeable material, and filter fabric for subdrains. The perforated pipe should be surrounded on at least three sides by a minimum of six inches of permeable material, and the permeable material and the drainpipe should be completely wrapped in filter fabric. The subdrains should be constructed in an excavated trench or equivalent, and the permeable material should extend from the trench bottom up to within about two feet of the ground surface. The perforated pipe system should gravity drain to daylight, and should have a cleanout extending to the ground surface at the uphill end, and cleanouts at every angle point over 30 degrees.

For filter fabric, use 6-ounce per square yard minimum weight, non-woven, geotextile fabric by a reputable manufacturer, specifically designed for the purpose of allowing water passage while retaining soil materials.

For permeable material, use free draining, durable, granular material, 100 percent passing the 1-1/2 inch sieve, and not over three percent passing the No. 10 sieve. Washed pea gravel, or drainrock as commonly used for septic leachfield applications should qualify as permeable material.

Perforated pipe should be durable, and at least four inches in minimum diameter. Holes or slots should be matched to surrounding permeable material such that the finer particles do not enter the pipe during or subsequent to installation.

Backfill consisting of low permeability soil, at least 1.5 feet thick, should be placed above the wrapped permeable material to prevent infiltration of surface water. The low permeability backfill should consist of compact clayey soil. Alternatively, competent asphalt or concrete pavement may be substituted for the "impermeable" backfill.

The surface should be sloped such that runoff is not allowed to pond above the subdrain system. All surface runoff conveyance systems (including rooftop downdrains) should be isolated from subdrains systems. Subdrain pipe outlets should be constructed in a manner that will not allow surface drainage to back up into the subdrain system during periods of heavy runoff. Subdrain outlets should be screened to prevent the entry of animals.

6. Drainage and Erosion

To mitigate erosion potential, we recommend the following measures:

a. Wherever possible, design finished grade to allow sheet runoff rather than concentrated runoff.

b. Where concentrated runoff will occur, minimize its velocity by controlling slopes, and protect the channel and discharge area by dissipating flow energy, using rock or other erosion resistant surfacing as appropriate.

c. Compact exposed fill slopes, and protect both cut and fill slopes from concentrated runoff or heavy sheet runoff by utilizing brow ditches or other drainage control facilities.

d. Erodable cut or fill slopes, or other soil surfaces, should be protected by using vegetative cover, jute mesh and straw, rock slope protection, or other measures to provide erosion resistance.

e. Perform site work and vegetation establishment during seasons not subject to repeated or prolonged rainfall.

f. Provide periodic maintenance of erosion control measures.

Construction Considerations

The following construction considerations are presented to aid in project planning. These considerations are not intended to be comprehensive; other issues may arise which will require coordination between the owner, the engineer, and the contractor's construction methods and capabilities.

Wintertime groundwater levels were not observed or determined. It is important to note that even small quantities of persistent seepage may substantially complicate construction operations if the proposed excavation extends near or below areas of saturated soil. Construction difficulties resulting from near surface ground water or excess soil moisture will tend to become less likely if grading activities are conducted in the midsummer to fall time period.

Following site stripping, exposed soil subgrade will require compaction prior to placing structural fill or pavement baserock. Compaction of the soil subgrade, or achieving a firm soil subgrade surface under proofrolling, may be difficult or impractical if high groundwater or excess soil moisture conditions prevail, and remedial subgrade stabilization measures may be required. Recommendations for remedial subgrade stabilization measures should be specifically provided, following review of conditions encountered. These conditions are anticipated to be most likely to occur in the relatively low-in-elevation areas in the two Groundwater Mitigation Areas shown on the Site Plan, but could occur in other site locations as well.

Construction of the building pads and vehicle pavement areas will include stripping dark-colored topsoil, which is typically indicated to be from 0.5 to 1.5 feet in thickness across the site. This will generate a significant volume of material, and may require replacement by a significant volume of structural fill, depending upon design grades.

Existing moderately plastic spoil fill free from vegetation, dark-colored topsoil, and cultural debris (wood, metal, plastic, glass, sheetrock, etc) is likely to be suitable for use as structural fill. No high-plasticity clayey soils were observed in the portions of existing spoil fill mounds observed.

OSHA trench and excavation safety regulations should be acknowledged and followed. Compliance with safety regulations is the responsibility of the contractor.

Most site soils are anticipated to be cohesive and relatively strong. Some low-cohesion sandy soils may be encountered. Due to the potential weak nature of some of the site's soil strata, some trenches may be subject to sidewall instability (sloughing, running, or sudden collapse of the trench sidewalls).

Construction Phase Monitoring

In order to assess construction conformance with the intent of our recommendations, it is important that a representative of our firm:

- monitor adequate site stripping, including removal of vegetation, root-filled soils, dark-colored organic topsoils, and uncontrolled existing fill soils from areas to receive structural fills;
- monitor compliance with setback requirements;
- monitor adequate subgrade preparation for support of structural fill and floor slabs;
- monitor placement of structural fill;
- monitor foundation excavations and soil subgrade surfaces to support floor slabs;
- monitor subdrains, retaining wall backdrains, underdrains if required, and retaining wall waterproofing; and
- monitor preparation and compaction of pavement section subgrades and structural fill, and pavement section materials.

This construction phase monitoring is important because it provides the owner and SHN the opportunity to verify anticipated site conditions, and recommend appropriate changes in design or construction procedures if site conditions encountered during construction vary from

those described in this report. They also allow SHN to recommend appropriate changes in design or construction procedures if construction methods adversely affect the competence of onsite soils to support the structural improvements.

Limitations

The analyses, conclusions, and recommendations contained in this report are based on site conditions that we observed at the time of our investigation, data from our subsurface explorations and laboratory tests, our current understanding of proposed project elements, and on our experience with similar projects in similar geotechnical environments. We have assumed that the information obtained from our limited subsurface explorations is representative of subsurface conditions throughout the site. In order to confirm this assumption, a representative of our firm must observe and evaluate actual soil conditions encountered during project construction operations.

Subsurface conditions may differ from those disclosed by our limited investigations. If differing conditions are encountered during construction, our firm should be notified immediately so that we can reevaluate the applicability of our conclusions and recommendations. Such an evaluation may result in reconsidered and/or amended recommendations. If the scope of the proposed construction, including the proposed loads, grades, or structural locations, changes from that described in this report, our recommendations should also be reviewed.

Our firm has prepared this report for your exclusive use on this project in substantial accordance with the generally accepted geotechnical engineering practice as it exists in the site area at the time of our study, including time and budget constraints. No warranty is expressed or implied. The recommendations provided in this report are based on the assumption that an adequate program of tests and observations will be conducted by our firm during the construction phase in order to evaluate compliance with our recommendations.

If there is a substantial lapse of time between the submission of our report and the start of work at the site, or if conditions have changed due to natural causes or construction operations at or adjacent to the site, we should review our report to determine the applicability of the conclusions and recommendations considering the changed conditions and time lapse. This report is applicable only to the project and site studied.

The field and laboratory work was conducted to investigate the site characteristics specifically addressed by this report. Assumptions about other site characteristics, such as hazardous materials contamination, or environmentally sensitive or culturally significant areas, should not be made from this report.

TOPOGRAPHIC SURVEY

FOR

ROBERT BARNUM & FRED LUNDBLADE

IN

SE 1/4 SECTION 3 T4N, R1W, H.M.
MAY, 2002 SCALE 1" = 50'

HUMBOLDT COUNTY
STATE OF CALIFORNIA

KELLY-O'HERN ASSOCIATES
EUREKA, CALIFORNIA

Michael J. O'Hern L.S. 4829
License expires 9/30/04
Dated _____

LICENSED LAND SURVEYOR
MICHAEL J. O'HERN
No. 4829
Exp. 9/30/04
STATE OF CALIFORNIA

CHANGES/ADDITIONS:

JULY 20, 2002 - SHN TEST PITS AND SLOPE SETBACK LINE ADDED. DRAINAGE EASEMENT ADDED

NOTES

1. PURPOSE: THE PURPOSE OF THIS MAP IS TO PROVIDE TOPOGRAPHIC INFORMATION FOR PROPOSED SITE PLANNING.
2. DATE OF SURVEY: MAY, 2002
3. DATUM: CITY OF EUREKA, FROM CITY MONUMENT NO. 295 (BOYLE DRIVE EC MONUMENT) EL. 179.75
4. PROPERTY LINE INFORMATION: BOOK 22 MAPS, PAGES 99, 100 & 101. ADDITIONAL SURVEY TIES ARE NEEDED FOR VERIFICATION OF THE PROPERTY LINES SHOWN.
5. UNDERGROUND DISCLAIMER: NO RESEARCH OR INVESTIGATION REGARDING UNDERGROUND PIPES, ELECTRIC LINES, OR OTHER SUBSURFACE FEATURES HAS BEEN PERFORMED FOR THIS MAP. NO LIABILITY IS ASSUMED FOR ANY UNDERGROUND INFORMATION.

LEGEND

TFC TOP FACE CURB
GSTOB GROUND SHOT AT TOP OF BANK
○ FOUND CORNER MONUMENTS

SOIL STOCKPILES WERE NOT LOCATED FOR THIS MAP

EXPLANATION

TP1 TEST PIT LOCATION AND DESIGNATION

DRAINAGE EASEMENT FROM BOOK 22 MAPS, PAGES 99 - 101

SLOPE SETBACK LINE BY SHN ENGINEERS & GEOLOGISTS

RECENT DEBRIS SLIDE

FENCE ALONG PROPERTY LINE

GROUNDWATER MITIGATION AREAS (SEE PROJECT GEOTECHNICAL REPORT)

FREDERICK DRIVE

DICKSON DRIVE

LUNDBLADE DRIVE

HELFIKER RETAINING WALL

WATER TANK

RECENT DEBRIS SLIDE

SLOPE SETBACK LINE

CONTOUR INTERVAL: 1 FT.

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH, ADJ

SHN CONSULTING ENGINEERS & GEOLOGISTS, INC.
812 W. Wabash
Eureka, CA 95501
(707)441-8855
FAX (707)441-8877

DSGN | DR | CHK | APVD

LUNDBAR HILLS, EAST UNIT
LUNDBLADE DRIVE
EUREKA, CALIFORNIA

SITE PLAN

SHEET 1 OF 1
DATE 6/2002
PROJ. NO. 002185

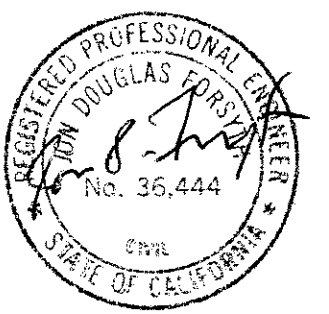
002185-TEST-PITS

PRELIMINARY DRAINAGE STUDY
&
HYDROLOGY REPORT

LUNDBAR HILLS SUBDIVISION, UNIT No. 6
Lundblade & Dickson Dr.
EUREKA, CA

APN 301-031-039

July, 2003



PREPARED BY:

FORSYTH ENGINEERING

JON D. FORSYTH, CIVIL ENGINEER, LAND SURVEYOR
1298 Spring Street, ARCATA, CA 95521
(707) 822-5114

July 7, 2003 Job No. 0217

Gary Boughton, PE, Senior Engineer
City of Eureka, Department of Public Works
Engineering Department
531 "K" Street
Eureka, California 95501

Re: Lundbar Hills Unit No.6, Major Subdivision
APN 301-031-039, Lundblade & Dickson Drives
Preliminary Drainage Study and Hydrology Report

Dear Gary,

Please find attached two copies of this Preliminary Drainage Study and Hydrology Report covering the above captioned subdivision.

INTRODUCTION:

The subject property is located at the easterly end of Lundblade Drive, and is the final unit of the Lundbar Hills area of southeastern Eureka, as illustrated on the attached topographic Hydrology Maps & USGS quad map. It is located on a ridge of timberland that drains to a tributary of Martin Slough. Approximately eighty percent of the portion of the land to be developed drains northerly along an existing well-defined drainage course, down a gulch through the proposed remainder parcel , and into Martin Slough. A portion of the stormwater runoff from the fully-built Unit 5 of this subdivision runs east and north through the subject property along an existing drainage easement over this same gulch. Since this property is on a ridge, there are areas that flow to other drainages. However, since most of this will become the backyards of the proposed development, these other drainages will be minimally impacted.

Therefore, this preliminary analysis will be focussed on demonstrating the feasibility of directing the increase in runoff to the primary drainage, and showing that the impacts can be substantively mitigated by using underground detention structures and standard erosion control measures.

METHODS:

The Rational Method is used to determine approximate flows at critical design points. The following equations (from CalTrans Hydraulics Dept.) were used to calculate Intensity from Times of Concentration:

$$I10 = 0.82\ Tc^{-0.491}$$
$$I100 = 1.16\ Tc^{-0.491}$$

These are essentially the same equations as graphed on the I.D.F. curves presented as

Figure IV-1 in reference No.1. The "C" factor was chosen from references 1, Table IV-1. The existing zoning and General plan designations were determined from current Planning Department information, see attached Area Table. Since the extreme headwaters is in forested land, I have chosen an initial Time of Concentration of 15 minutes for the initial 1.81 acre sub-basin. See Reference 1, page IV-4 and Table IV-2.

The basin was divided into sub-areas, and the flood flows were calculated for the points of concentration shown at location of proposed drainage structures. Hydrology maps were prepared showing the tributary drainage areas and proposed and existing drainage facilities. The drainage areas were 'planimetered' using AutoCad area measurements from the attached Hydrology Maps. The flows are tabulated and calculated on the attached Rational Method Drainage Study forms, as outlined in Reference 2. Also, an open channel flow computer program by Haestead Methods (Reference 3) was used to determine approximate flow depths, velocities, & capacities for proposed drainage structures, with these results used indirectly to estimate the travel times A BPR culvert nomograph is used to show capacity of the proposed culverts.

RESULTS & DISCUSSION:

The following table summarizes the expected stormwater flows for 10-year and 100-year flood events for both pre and post development measured at point of concentration No.6:

Table 1: Runoff Flow Rates for Pre- and Post-Development for 10- and 100-year storms

	Pre-Development	**Post-Development**
10-Year Flood	**3.31 cfs**	**7.23 cfs**
100-year Flood	**4.69 cfs**	**10.23 cfs**

Note that the Post-Development flows in the above table do not yet reflect the mitigation impact of the proposed detention structures. Several trial solutions for detention structures are presented in the attached calculation documents, showing that it is feasible to meet the City's detention requirements.

Proposed Improvements:

Please refer to the accompanying 'Tentative Map – Utility & Grading Design' showing the proposed storm drain system. It is proposed that the runoff will flow overland from offsite and be initially collected by curb and gutter flow to two drop inlets at a sag point in the proposed Dickson Drive. From preliminary detention calculations, placement of underground 48-inch diameter pipe under Dickson Drive (not shown) with a reduced-size outlet can be sized to provide adequate detention time. From there, the drainage will be conveyed by 18-inch storm drain to drop inlets collecting the drainage from Lundblade Drive. Immediately downstream northerly from Lundblade Drive an additonal underground detention structure will be placed in a easement on Lots 213 & 214; or alternately (or additionally) the underground detention structure can be placed within the Lundblade Drive right of way. Further downstream in the existing gulch, rock energy dissipators, rock check dams, and standard erosion control measures shall be placed to

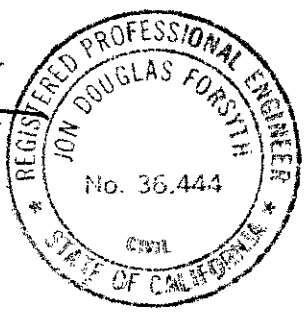
provide a stable natural channel down the gulch to the tributary to Martin Slough.

CONCLUSIONS:

Attached please find calculations estimating storm runoff, and hydraulic capacity of proposed and existing drainage facilities. These capacity calculations show that the designed storm drain facilities are adequate, and that is is practical and feasibile to incorporate adequately-sized underground detention structures into the proposed improvements for this wubdivision. A complete hydraulic and hydrologic analysis with detailed detention structure specifications will be presented at the time of Improvement Plan submittal.

If you have any questions or need any other information concerning this project please do not hesitate to call.

Sincerely,
FORSYTH ENGINEERING & SURVEYING
By:



Jon D. Forsyth, RCE 36,444
Principal Engineer

JDF/jdf

Attachments

REFERENCES:

1. Eureka Drainage Study, by Winzler & Kelly, 1996.

2. Flood Control Design Criteria Manual, Sonoma County Water Agency, Santa Rosa, Calif. August 1983.

3. Flowmaster, Open Channel Flow Computer Program, ver.3.42, (based on Manning's Equation) Haestead Methods Inc, Waterbury Conn., 1991.

4. Open Channel Hydraulics, Ven Te Chow, PhD. McGraw-Hill, 1959.

ASSESSOR'S PARCEL NO. 301-031-039

LUNDBAR HILLS SUBDIVISION, UNIT No. 6
ADDRESS: 5130± LUNDBLADE DRIVE, EUREKA, CA
E 1/2 SEC. 3, T4N, R1W, HB&M.

OWNER & SUBDIVIDER

OWNER:
C. Robert Barnum
Fred H. Lundblade, Jr.
P. O. Box 1425
EUREKA, CA 95502

AGENT:
MIKE O'HERN
KELLY-O'HERN ASSOC.
3240 MOORE AVE.
(707) 442-7283

DEED

DOC. No. 1914.OR.0040436 22.M.100, Remainder Parcel

AREA

1,208,873 S.F.± (27.75 ACRES ±)

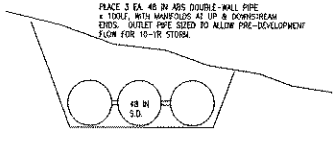
CURRENT ZONING & GENERAL PLAN DESIGNATION

CURRENT ZONING IS RS, RESIDENTIAL SINGLE FAMILY, 6,000 S.F. MINIMUM PARCEL SIZE.

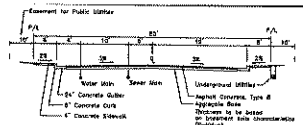
GENERAL PLAN DESIGNATION IS R-L, RESIDENTIAL LOW DENSITY, 4.1 TO 8 UNITS PER ACRE.

NOTES

1. PROJECT DESCRIPTION: TO CREATE 56 LOTS AND A REMAINDER PARCEL FROM THE EXISTING 27.75 Ac. PARCEL.
2. CURRENT USE: THE PARCEL IS CURRENTLY VACANT.
3. UTILITIES:
   P.G.&E.: PRIMARY ELECTRIC AND GAS FROM LUNDBLADE DRIVE
   PHONE & CATV: FROM LUNDBLADE DRIVE & DICKSON CT.
   WATER & SEWER: AVAILABLE FROM CITY OF EUREKA EXISTING WATER AND SEWER MAINS AT THE END OF LUNDBLADE DR. & DICKSON CT.
4. FIRE PROTECTION: PROVIDED BY THE EUREKA FIRE PROTECTION DISTRICT.
5. ACCESS: CITY STREETS AS SHOWN, CONSTRUCTED TO CITY STANDARDS.
6. DRAINAGE: A NEW STORM DRAINAGE SYSTEM WILL BE INSTALLED PER ACCOMPANYING PRELIMINARY DRAINAGE REPORT BY THIS OFFICE.
7. TOPOGRAPHY: IS FROM A FIELD SURVEY BY KELLY-O'HERN ASSOCIATES PERFORMED MAY, 2002, CONTOUR INTERVAL = 2 FT.
8. THIS MAP IS INTENDED TO SHOW PROPOSED UTILITY DESIGN AND PRELIMINARY GRADING ONLY. SEE ACCOMPANYING TENTATIVE MAP BY KELLY-O'HERN ASSOCIATES FOR ADDITIONAL PLANNING AND SURVEYING INFORMATION.
9. THIS PRELIMINARY DESIGN IS BASED ON A "R-1 PRELIMINARY ENGINEERING GEOLOGIC INVESTIGATION" FOR THE SUBJECT PROPERTY BY DAVID R. BRADLEY, PE, DATED AUG. 27, 2002, SHN GEOLOGISTS.
10. AN UNDERGROUND STORM DETENTION STRUCTURE SHALL BE CONSTRUCTED TO DETAIN STORMWATER FLOWS AS REQUIRED BY CITY STANDARDS.
11. LOTS 207 THROUGH 210 WILL REQUIRE INDIVIDUAL SANITARY SEWER SUMPS AND PUMPS.



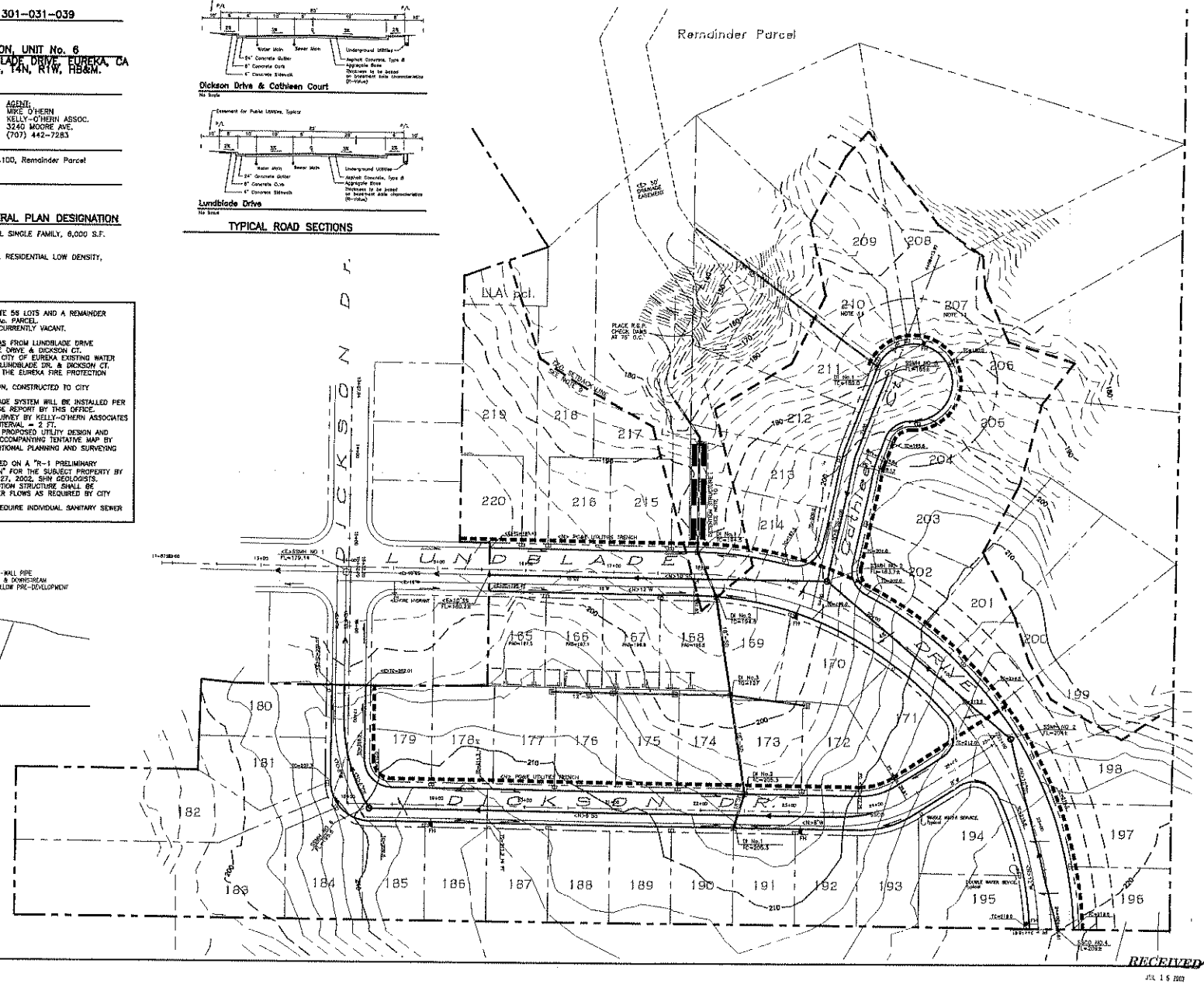
DETENTION STRUCTURE
No Scale
Looking South



Dickson Drive & Cathleen Court
No Scale

Lundblade Drive
No Scale

TYPICAL ROAD SECTIONS



RECEIVED
JUL 15 2003
DEPARTMENT OF COMMUNITY DEVELOPMENT

FORSYTH ENGINEERING
CIVIL ENGINEER, LAND SURVEYOR
ARCATA, CALIFORNIA 95521
(707) 826-8114

Rev. No.	Date	Approved	Revision(s) Made
1			

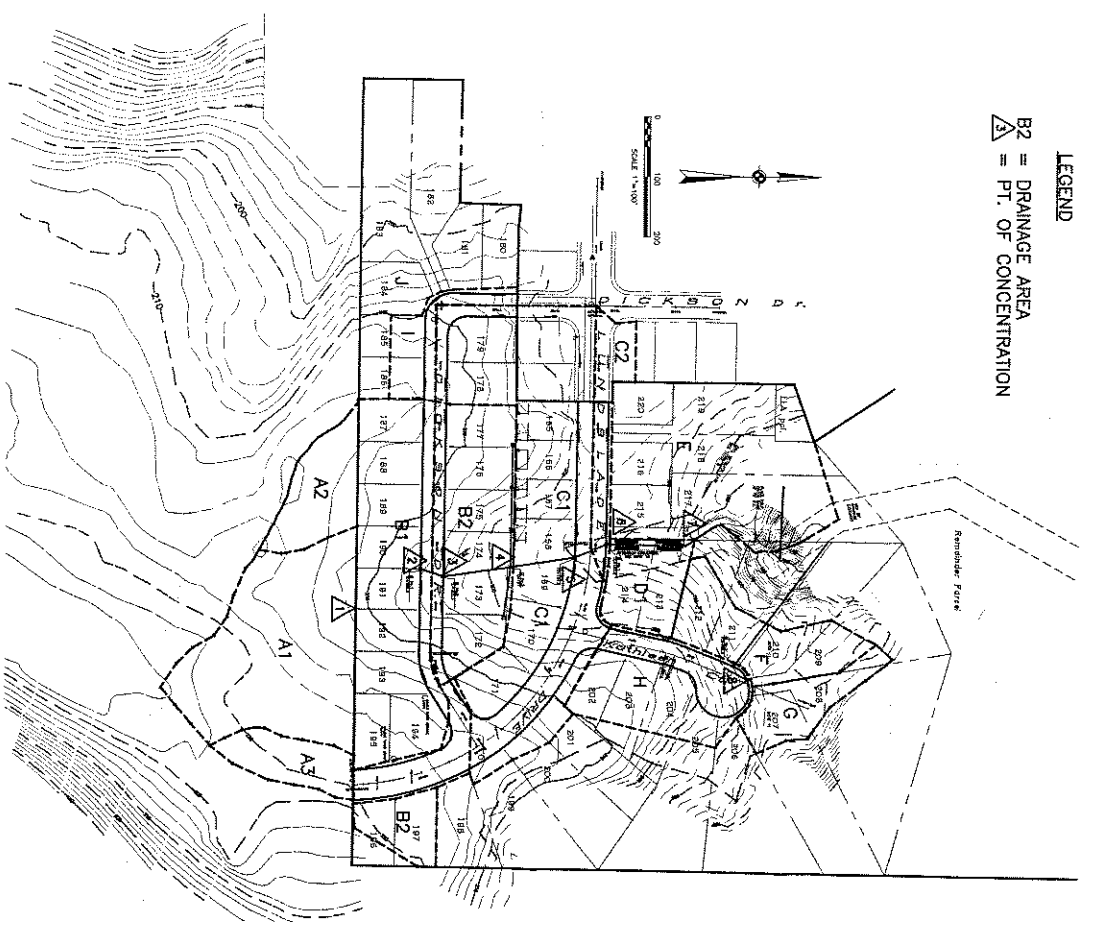
Barnum & Lundblade
Eureka, CA

Lundbar Hills Subdivision, Unit No.6

TENTATIVE MAP - UTILITY & GRADING

Eureka, CA

date July 2, 2003
sheet 1 of 1
dwg. no. 0217MAP.dwg
job no. 0217



DATE July 7, 2003 SHEET 1 OF 1 DWG. NO. K JOB NO. 0217-Hydro	LUNDBAR HILLS Eureka, California Hydrology Map No. 2		FORSYTH ENGINEERING CIVIL ENGINEER, LAND SURVEYOR 1238 Spring Street ARCATA, CALIFORNIA 95521 (707) 822-5114 APPROVED License Expires 9-30-2004	Rev. No.	Date	Approved	Revision(s) Made

SUPPORTING DOCUMENTATION
FOR

PRELIMINARY DRAINAGE STUDY
&
HYDROLOGY REPORT

LUNDBAR HILLS SUBDIVISION, UNIT No. 6
Lundblade & Dickson Dr.
EUREKA, CA

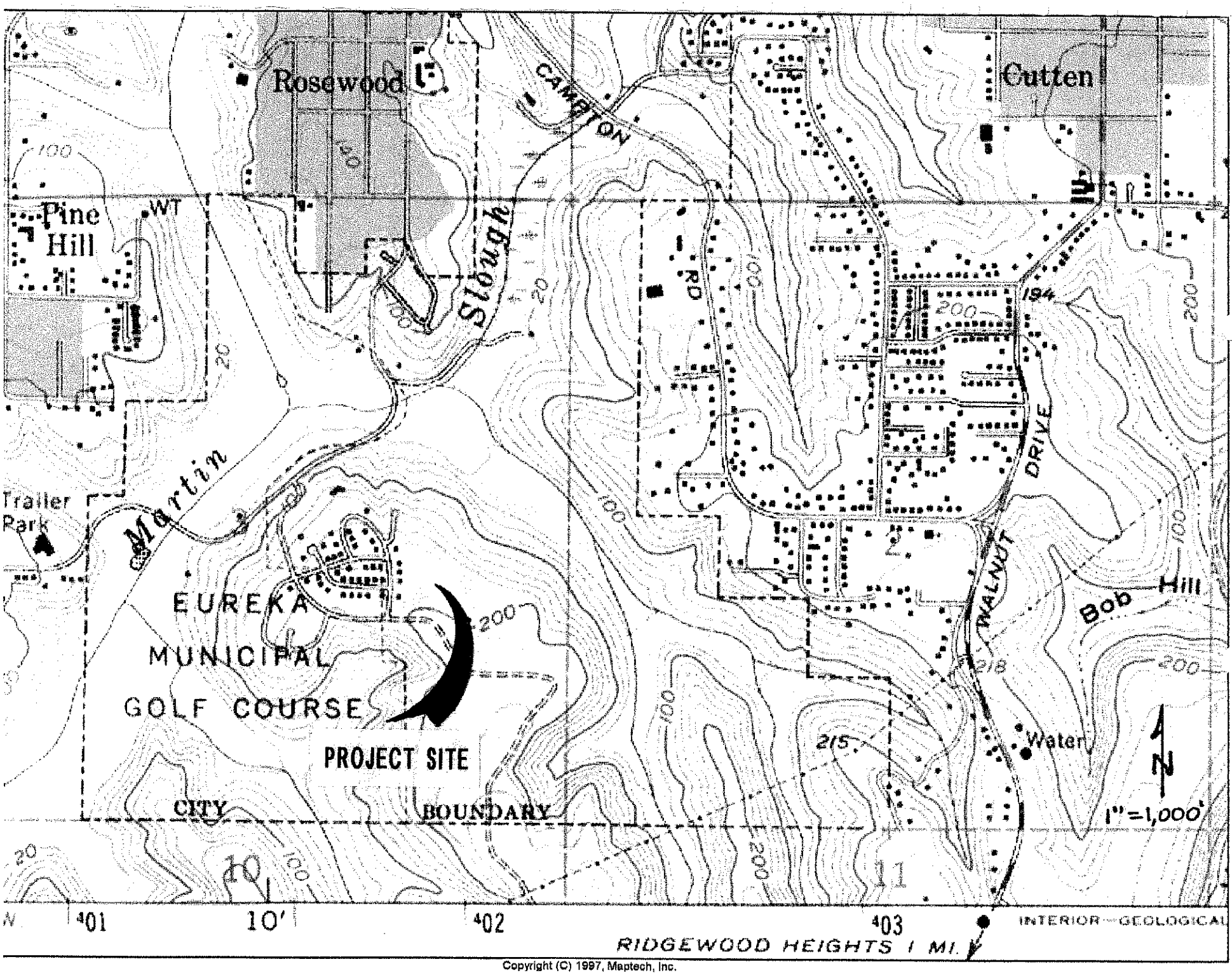
APN 301-031-039

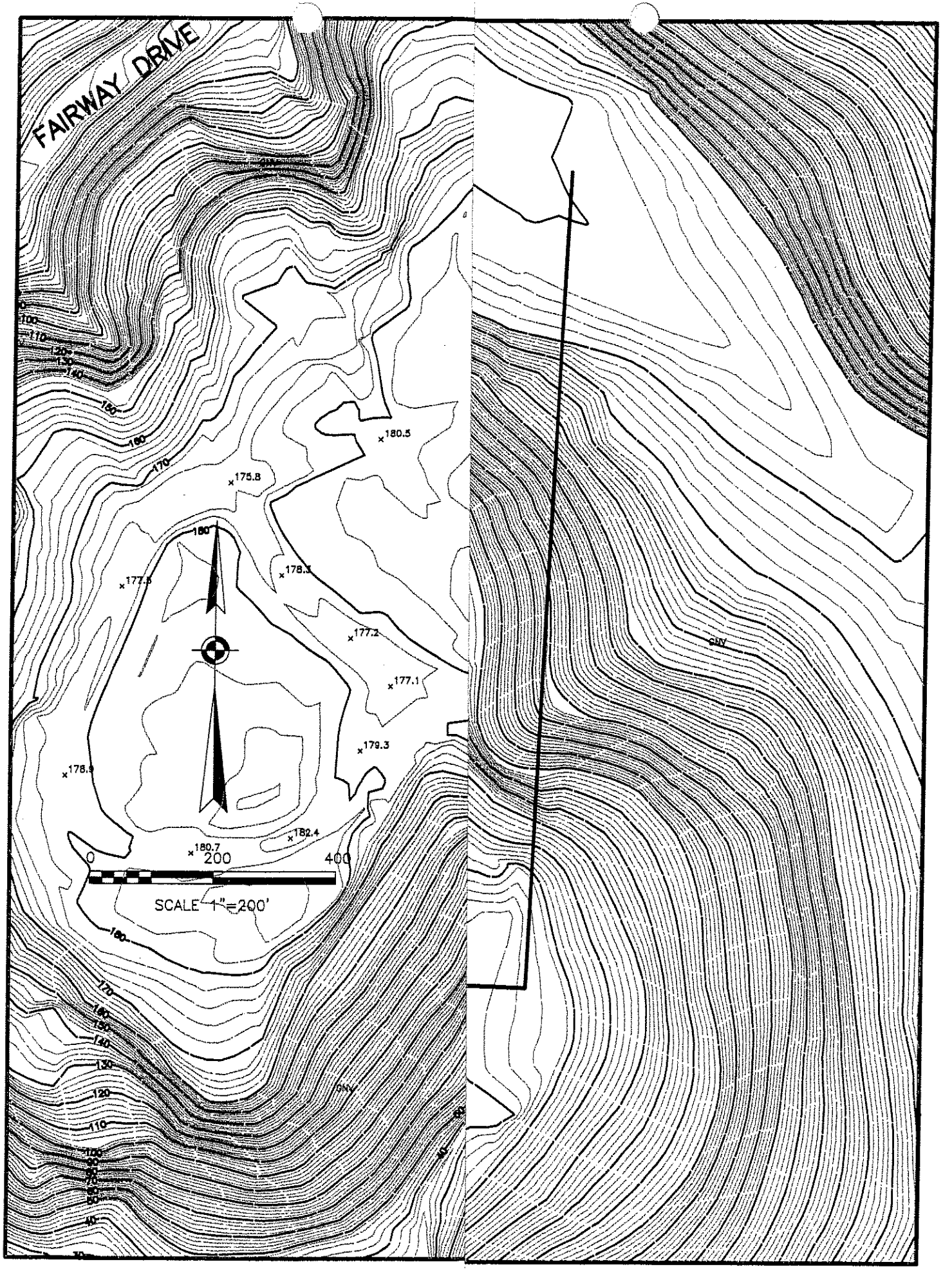
July, 2003

PREPARED BY:

FORSYTH ENGINEERING

JON D. FORSYTH, CIVIL ENGINEER, LAND SURVEYOR
1298 Spring Street, ARCATA, CA 95521
(707) 822-5114




FAIRWAY DRIVE
180.5
175.8
178.3
177.2
177.1
179.3
178.9
182.4
180.7
0
200
400
SCALE 1"=200'
ONV
ONV

LUNDBAR HILLS HYDROLOGY STUDY 6-6-03

Area	Square Feet	Acres	C-Pre-Dev	C-Post-Dev
A1	78,998.24	1.81	0.30	0.30
A2	10086.31	0.23	0.30	0.30
A3	21731	0.50	0.30	0.30
B1	79318.3	1.82	0.30	0.60
B2	85824.79	1.97	0.30	0.60
C1	132906.38	3.05	0.30	0.60
C2	16399.66	0.38	0.30	0.60
D	19905.59	0.46	0.30	0.60
E	89269.97	2.05	0.30	0.60
F	30738.56	0.71	0.30	0.60
G	17703.09	0.41	0.30	0.60
H	40325.37	0.93	0.30	0.60
I	14827.62	0.34	0.30	0.60
Total	638,034.88	14.65		

...RSYTH ENGINEERING & SURVEYING
...D. FORSYTH, CIVIL ENGINEER, LAND SURVEYOR
...Box 767, 1298 Spring Street, ARCATA, CA 95521
...7) 822-8122

PROJECT LUNDBAR HILLS No. 6 JOB No.

DESIGNED BY JDF DATE SHEET OF

UNDEVELOPED; T_c = 15MIN

HYDROLOGY

RATIONAL METHOD DRAINAGE STUDY

Point of Conc.	Area	Elev. / Distance	Slope %	Vel. fps	10 yr Travel Time	10 yr Total Time	100 yr Travel Time	100 yr Total Time	Intensity I_{10}	Intensity I_{100}	K	C	ΔA ac / ΣA ac	KCΔA	ΣKCΔA	Q_{10} cfs	Q_{100} cfs
	A_1	OVERLAND			15		*SAME* AS 10 YR.				1.0	0.3	1.81	0.543			
1						15			1.62	2.29					0.543	0.88	2.02
	A_2	OVERLAND										0.3	0.23	0.069			
	A_3	"										0.3	0.50	0.150			
	B1	" 400'	3.5%	1.2	5.5						V	0.3	1.82	0.546			
2						20.5			1.39	1.97					1.308	1.82	2.58
	B2	150'	4%	1.5	1.7							0.3	1.97	0.591			
4						22.2			1.34	1.89					1.899	2.54	3.59
	C_1	110	3.6	1.5	1.2							0.3	1.83	0.549			
5						23.4			1.30	1.84					2.448	3.18	4.50
	C_2	62	5	2.5	0.4							0.3	0.38	0.114			
6						23.8			1.29	1.83					2.562	3.31	4.69

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PROJECT LUNDBAR HILLS No 6 JOB No.

DESIGNED BY JDF DATE SHEET OF

DEVELOPED

HYDROLOGY

RATIONAL METHOD DRAINAGE STUDY

Point of Conc.	Area	Elev. / Distance	Slope %	Vel. fps	10 yr Travel Time	10 yr Total Time	100 yr Travel Time	100 yr Total Time	Intensity I_{10}	Intensity I_{100}	K	C	ΔA ac / ΣA ac	KCΔA	ΣKCΔA	Q_{10} cfs	Q_{100} cfs
	A_1	OVERLAND			15		15				1.00	0.30	1.81	0.543			
①						15		15	1.62	2.29			1.81		0.543	0.88	2.02
	$A2_+$											0.30	0.23	0.069			
	$A3_+$											0.30	0.50	0.15			
	B1	CURB 420'	4%	2	3.5							0.60	1.82	1.09			
②						18.5			1.46	2.07			4.36		1.852	2.70	3.83
	B2	18" SD 150'	1.5%	5.8	0.5							0.60	1.97	1.182			
④						19.0			1.44	2.04			6.33		3.034	4.37	6.19
	C_1	18" SD 110	1.4%	6.4	0.25							0.60	3.05	1.830			
⑤						19.25			1.43	2.03			9.38		4.864	6.96	9.87
	C_2	24" SD 112	0.8%	5.8	0.2							0.60	0.38	0.228			
⑥						19.5			1.42	2.01			9.76		5.092	7.23	10.23

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name: 0212hydro

Comment: PC3 to PC4 Velocity

Solve For Actual Depth

Given Input Data:

Diameter.....	1.50 ft
Slope.....	0.0150 ft/ft
Manning's n.....	0.013
Discharge.....	2.70 cfs

Computed Results:

Depth.....	0.47 ft
Velocity.....	5.76 fps
Flow Area.....	0.47 sf
Critical Depth....	0.62 ft
Critical Slope....	0.0051 ft/ft
Percent Full.....	31.10 %
Full Capacity.....	12.87 cfs
QMAX @.94D.....	13.84 cfs
Froude Number.....	1.75 (flow is Supercritical)

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name: PC4 to PC5

Comment: PC4 to PC5

Solve For Actual Depth

Given Input Data:

Diameter.....	1.50 ft
Slope.....	0.0140 ft/ft
Manning's n.....	0.013
Discharge.....	4.34 cfs

Computed Results:

Depth.....	0.61 ft
Velocity.....	6.41 fps
Flow Area.....	0.68 sf
Critical Depth....	0.80 ft
Critical Slope....	0.0055 ft/ft
Percent Full.....	40.79 %
Full Capacity.....	12.43 cfs
QMAX @.94D.....	13.37 cfs
Froude Number.....	1.67 (flow is Supercritical)

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name: PC5 to PC6

Comment: PC5 to PC6

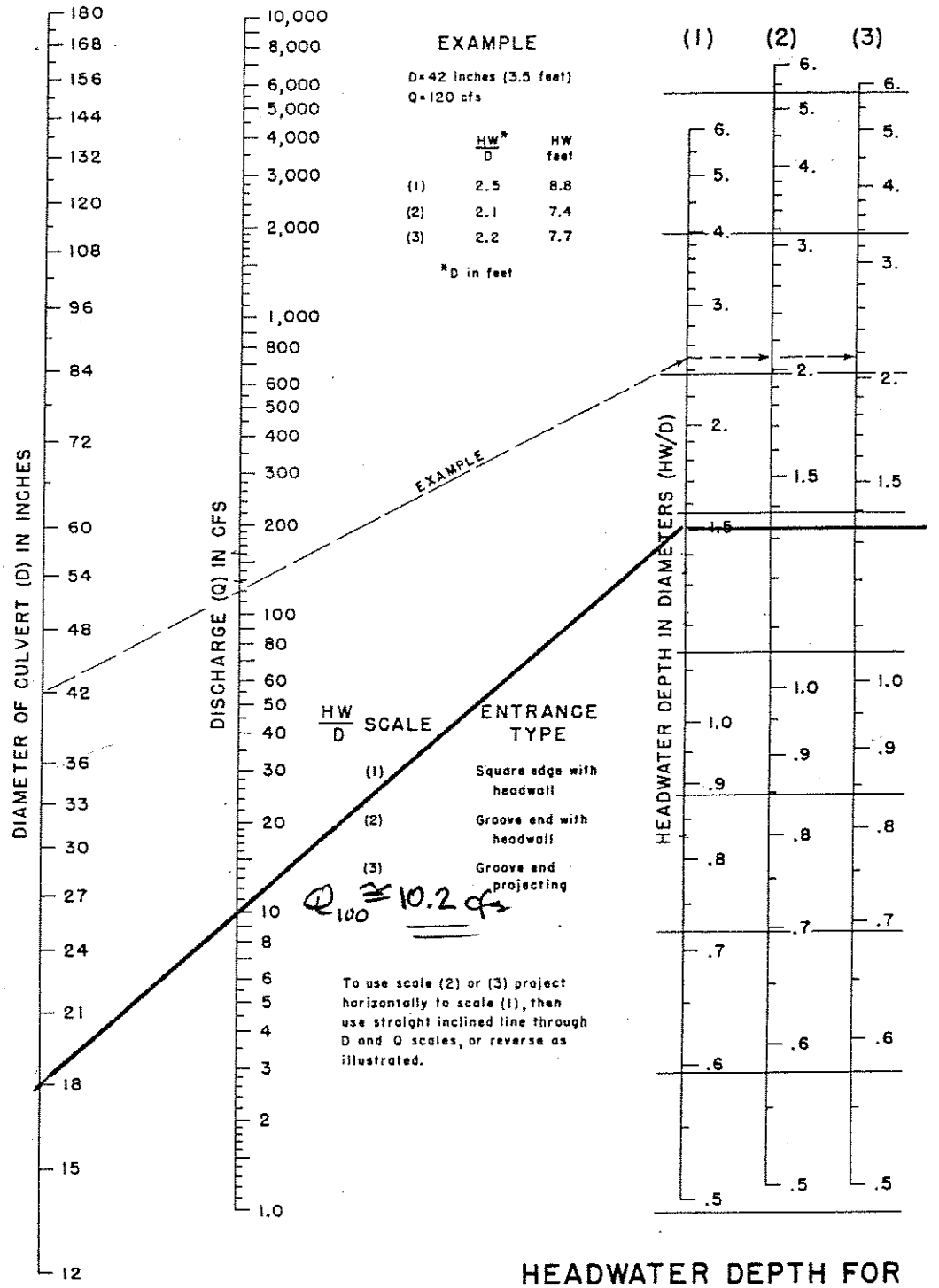
Solve For Actual Depth

Given Input Data:

Diameter.....	1.50 ft
Slope.....	0.0080 ft/ft
Manning's n.....	0.013
Discharge.....	6.91 cfs

Computed Results:

Depth.....	0.96 ft
Velocity.....	5.81 fps
Flow Area.....	1.19 sf
Critical Depth....	1.02 ft
Critical Slope....	0.0067 ft/ft
Percent Full.....	63.75 %
Full Capacity.....	9.40 cfs
QMAX @.94D.....	10.11 cfs
Froude Number.....	1.13 (flow is Supercritical)



$Q_{100} = 10.2$ cfs

HW = 2.3' OK

HEADWATER DEPTH FOR CONCRETE PIPE CULVERTS WITH INLET CONTROL

BUREAU OF PUBLIC ROADS JAN. 1963

LUNDBAR HILLS No-6

DETENTION STRUCTURE SIZING

TRIAL SOLUTION #2:

USE 150 LF OF 48" DIA SD LOCATED AT THE STORM TRAIN CROSSING UNDER DICKSON DRIVE.

$\therefore$ 150 LF $\times$ 12.57 CF/LF = 1885 CF

ΔQ_{10} @ (2) = 2.70 − 1.82 = 0.88 CFS

THIS STORAGE VOLUME WILL DETAIN THE INCREASE IN THE 10-YEAR STORM FOR:

$$\frac{1,885 \text{ CF}}{0.88 \text{ CFS}} = 2142 \text{ SEC} = 35.7 \text{ MIN.}$$

ADD T_c @ (2): 35.7 MIN + 18.5 MIN. =

NOW CALC NEW Q_{10} @ (2) WITH DETENTION:

$$I_{10}(54.2) = 0.82\left(\frac{54.2}{60}\right)^{-0.491} = 0.862 \text{ IN/HR}$$

$$\therefore Q_{10} \text{@} (2) = I_{10} \cdot \Sigma KCA \text{ (FROM TABLE)} = (0.862)(1.852) = 1.60 \text{ cfs}$$

THIS IS $\frac{1.60}{1.82} \times 100 = 88\%$ OF PRE-DEVELOPMENT Q_{10} – A 12% DECREASE, A MORE THAN SUFFICIENT MITIGATION FOR IMPACTS UPSTREAM OF THIS POINT.

PRELIMINARY CONCLUSION:

FROM THE TWO ABOVE TRIAL SOLUTIONS, IT IS APPARENT THAT IT WILL BE FEASIBLE TO PRACTICALLY DETAIN THE INCREASE IN STORMWATER FLOWS ON THE PROJECT SITE.

LUNDBAR HILLS No. 6

PRELIMINARY DETERMINATION OF DETENTION STORAGE REQUIREMENTS

ASSUME FOR 10-YEAR STORM (PER ATTACHED CALCS)

Q_{10} DEVELOPED = 7.23 cfs

Q_{10} UNDEVELOPED = 3.31 cfs

$\Delta Q_{10} = (7.23 - 3.31) = 3.92$ cfs = THIS IS THE INCREASE DUE TO DEVELOPMENT, FOR 10-YR STORM

SO, THE QUESTION IS: FOR HOW LONG A PERIOD DO WE NEED TO DETAIN THIS DIFFERENTIAL (eg: 3.92 CFS)?

TRIAL SOLUTION #1

USE 600 LF OF 48" Ø STORM DRAIN, PLACED UNDERGROUND; DESIGN OUTLET SUCH THAT IT WILL PASS THE Q_{10}, UNDEVELOPED FLOW AND INCLUDE A SAFETY BYPASS THAT WILL ALLOW SAFE CONVEYANCE OF FLOWS LARGER THAN THE DESIGN STORM.

48 IN Ø SD GIVES 12.57 CF STORAGE PER LF,

∴ 600 LF × 12.57 CF/LF = 7542 CF

THIS STORAGE VOLUME WILL DETAIN THE 10 YR STORM FOR

$\frac{7{,}542 \text{ CF}}{3.92 \text{ CFS}} = 1{,}924$ SEC = 32.1 MINUTES

ADD T_c @ (6): 32.1 + 19.5 = 51.6 min

NOW CALC Q_{10} @ (6): $I_{10}(51.6\text{mn}) = 0.82\left(\frac{51.6}{60}\right)^{-0.491} = 0.705$

∴ Q_{10} (6) = $I_{10} \cdot \Sigma K \cdot C \cdot A = (0.705)(5.09)$ (5.09 FROM TABLE) = 3.59 CFS

THIS IS AN 8.5% INCREASE IN Q_{10}, DOWNSTREAM OF LUNDBLADE DR. -- A REASONABLE MITIGATION.

SEE TRIAL #2: NEXT PG.

Sidnie Olson

From: RICK BENNETT
Sent: Saturday, March 12, 2005 10:22 AM
To: Sidnie Olson
Cc: ERIC SMITH; Gary Boughton
Subject: Lundbar Hills Unit 6

Sidnie,

I have met with City staff and the developers of Lundbar Hills Unit Six Subdivision for the past two years. A significant impediment to this project has always been the Fire Code requirement for secondary access. When a secondary access is not feasible, the Fire Code allows the Fire Chief to accept additional fire protection features as an alternative. It is my impression a secondary access is not feasible. I suggested the developers hire a fire protection specialist, which they did. Their consultant made several suggestions, all of which are included in the project information provided by Kelly-O'Hern Associates, dated March 2, 2005.

I believe the six mitigations regarding secondary access listed in the project information meet the intent of the Fire Code requirements.

Rick Bennett
Fire Marshal

Kelly—O'Hern Associates PROFESSIONAL LAND SURVEYORS

3240 MOORE AVE. - EUREKA, CA 95501 707-442-7283

LUNDBAR HILLS – UNIT 6

PROJECT INFORMATION

REVISED MARCH 2, 2005

PROJECT DESCRIPTION

The applicants request approval of a major subdivision of 19.2 acres, resulting in 56 parcels and a remainder. The lots range in size from 6,500 square feet to 49,400 square feet. The lots will be served by the extension of Lundblade Drive and Dickson Drive. Lundblade Drive will be extended and improved to the South boundary line of the property to provide access to adjacent parcels and eventually a second access for Lundbar Hills.

The applicants propose that all residences to be constructed in this unit of Lundbar Hills will have Class A rated roofs and roof assemblies, non-combustible siding and NFPA 13D compliant automatic fire sprinkler systems for the house and garage.

Approximately 12.3 acres of previously logged land will be cleared for roadway construction and building site preparation. Approximately 250,000 board feet of timber will be removed. Due to the size of the area (greater than three acres) no permit is needed from the City of Eureka. All timber harvesting will be done in compliance with timber harvesting regulations of the State of California.

The project also includes a lot line adjustment and one variance. These will be requested by a separate application.

SURROUNDING LAND USE AND SETTING

The project site is located on a broad ridge running in a generally East–West direction near the Southern boundary of the City of Eureka. This ridge runs Westerly to Fairway Drive through the neighborhood of Lundbar Hills. The ridge runs Southerly through timberland to Ridgewood Drive in Cutten.

Land to the west of the subject property is the neighborhood of Lundbar Hills, developed with single family residences. Land to the North and East is relatively steep timberland. Land to the South is undeveloped timberland and recently cutover land.

AESTHETICS

The view from the site is of undeveloped timberland to the North, East and South. New single family residences are visible to the West.

Due to tree cover, the subject property is only visible from the streets and residences that are West of this property. After subdivision and development of residences, the subject property will be a continuation of the existing residential neighborhood.

AGRICULTURAL RESOURCES

The subject property has been used for growing and harvesting trees. The property is lightly stocked with trees at this time. An area of Monterey Pines was planted some time ago. These trees are now mature and near the end of their life span. The predominant species of tree is Redwood. Douglas Fir and Sitka Spruce are also found on the site.

Due to the relatively small size of the parcel and the residential zoning of this and adjacent parcels, the subject parcel is not an economically viable agricultural parcel.

AIR QUALITY

During construction of road improvements and during site grading, dust may be produced at levels that may affect air quality with regards to particulate matter. In order to reduce this effect, the site should be watered to control dust.

Burning of brush and logging slash will create smoke that will also contribute to an increase in particulate matter. Burning should be done at times when winds will carry smoke away from residences, or brush and slash should be chipped for spreading on site or removal.

BIOLOGICAL RESOURCES

No rare or endangered species are known to exist on the portion of the parcel proposed for subdivision. The remainder parcel may include riparian vegetation, but this area is not proposed for development by this project.

CULTURAL RESOURCES

The project site has been logged at least twice in the last 150 years. No historical structures were found on the property. Due to the forest canopy and past logging activities, it is unlikely that archeological sites will be found on the subject property.

GEOLOGY AND SOILS

A Preliminary Engineering Geologic and Geotechnical Investigation was prepared by SHN Consulting Engineers and Geologists. Building site recommendations are included in the report. A slope setback line was established in the field. The intent of the line is to identify the limit of the area that may be developed using typical Building Code foundation criteria. Development proposals for areas outside of this line will require site-specific geotechnical/geologic investigations.

Two areas requiring mitigation for high groundwater are identified in the SHN report.

HAZARDS AND HAZARDOUS MATERIALS

Based on past land use as undeveloped timberland, it is unlikely that hazardous materials will be found on the site. Proposed residential uses are not expected to produce hazardous substances.

The possibility exists that adjacent timberlands may be subject to wildland fires. The location of fire hydrants and a nearby City of Eureka water storage tank provide resources for the fire department to protect residences within the proposed subdivision.

HYDROLOGY AND WATER QUALITY

Runoff from the project site flows to Martin Slough. City of Eureka policy requires on-site detention to mitigate the increase in impervious surfaces caused by road construction and house construction. Detention facilities have been included in preliminary engineering plans that are part of the application package.

In order to protect water quality, erosion control measures will be included in subdivision improvement plans.

LAND USE AND PLANNING

The proposed subdivision is in compliance with City of Eureka general plan and zoning regulations, with the exception of a variance that is needed for one proposed lot. The proposed extension of Lundblade Drive will provide for the orderly development of adjacent property.

Enclosed is a copy of the Figure 17 "Circulation Map" from the Humboldt County Eureka Community Plan. The extension of Lundblade Drive is shown on this map, thus the proposed subdivision is in conformance with the circulation route shown in the County general plan.

MINERAL RESOURCES

No mineral resources are known to exist on the project site. Development of the project area will use mineral resources, i.e. gravel and paving. The amount used will be insignificant compared to the available resource.

NOISE

Since the site is surrounded on three sides by trees, the area is relatively quiet. Noise consistent with residential uses are heard along the West portion of the property. As the proposed project is developed, these sources of residential noise will be added to the site. No unusual sources of noise are anticipated.

POPULATION AND HOUSING

The proposed lots will be similar in size to somewhat larger than adjacent parcels in Lundbar Hills. The proposed project is expected to be the last extension of Lundbar Hills by the owners. The proposed lots will be developed with residences that are similar to those currently found in Lundbar Hills.

PUBLIC SERVICES

Fire protection and police services required for the proposed lots will be similar to those required for the previous units of Lundbar Hills. There will be an incremental increase in the need for these services.

The City of Eureka Fire Marshall has indicated that a second access to Lundbar Hills should be available for fire protection. A second access for Lundbar Hills has been studied for previous phases of Lundbar Hills. Enclosed is a memorandum to the City Engineer regarding a secondary access for Lundbar Hills. The conclusion of the City Engineer's Office, as described in a May 15, 2000 memorandum, is that "a secondary access over the Barnum and Lundblade properties do not appear to be physically or economically feasible", and "The connection to Ridgewood Drive and/or Walnut Drive to the south appear to be the most suitable secondary access route".

Based on the memorandum from the City Engineer's Office, and based on studies by engineers for previous phases of Lundbar Hills (as described in the information included in the memorandum), permanent secondary access is not feasible on the Barnum and Lundblade property. The logical second access route is shown on the Circulation Map included in the Eureka Community Plan (Figure 17, copy enclosed). Since the need for a second access currently exists, the proposed subdivision will provide an incremental step toward completion of a second access route. In fact, if the proposed subdivision is not constructed then the undeveloped land could become a gap in a second access route if the road system shown on the Eureka Community Plan is constructed.

Mitigation measures proposed at this time regarding the issue of a second access include:

- Installation of oversize waterlines to the South property line to provide for services for the future extension of Lundblade Drive.

- Continuation of Lundblade Drive to the South property line, constructed at the same width as previous units of Lundbar Hills. This provides a step towards completion of a second access route.

- Installation of two additional fire hydrants over the number specified by the Fire Marshall. These hydrants, along with the 500,000 gallon water tank installed by the owners, facilitate fire fighting capabilities for the City of Eureka.

- Each home will have an NFPA 13D compliant automatic fire sprinkler system for the house and garage.

- All construction will be provided with a Class A rated roof and roof assembly.

- All construction shall have non-combustible siding.

RECREATION

The owner and developer of previous units of Lundbar Hills dedicated a park for public use. This park provides a recreational area for future residences of this unit of Lundbar Hills.

TRANSPORTATION / TRAFFIC

A traffic study for Lundbar Hills was completed and updated for past phases of Lundbar Hills. This study has been updated for this proposed unit. Enclosed is a copy of traffic information from Walter B. Sweet, Civil Engineer. His conclusion is that the proposed subdivision will add a level of traffic that is within the capacity of the presently developed street.

UTILITIES AND SERVICE SYSTEMS

The owners have installed utilities in previous phases of Lundbar Hills with sufficient capacity to provide services for the proposed subdivision. For example, the owners paid for a large transformer at the end of Unit 5 in order to provide for electrical services for the proposed subdivision.

Water mains that have been installed previously were sized to provide service to the proposed subdivision. The owners constructed a 500,000 gallon water tank adjacent to this subdivision.

Sewer mains that have been installed previously were also sized to provide service to the proposed subdivision. The Golf Course Lift Station that serves Lundbar Hills and adjacent areas is reported to be at or near capacity. There is apparently a problem with storm water runoff entering the sewer system and dramatically increasing the flows during storms. City staff has indicated that mitigation measures may be available in order to increase the capacity of the lift station. Construction of the Martin Slough Trunk line should eliminate the need for this lift station. The trunk line is currently in the planning and design stage.

VESTING TENTATIVE MAP

The applicants have decided to request approval of a vesting tentative map in order to secure development rights as provided in Section 66498.1 of the Government Code. Under current market conditions the subdivision should be fully developed with residences over a timespan of a few years. A significant downturn in the economy, however, could delay full development by several years. A vesting tentative map will set development conditions that can be relied on if development is delayed for several years.

REMAINDER PARCEL

The remainder parcel includes land that is hillside, sloping down from the subdivision property, and nearly level land that is a valley floor. This land cannot be accessed from the proposed subdivision without great difficulty. Access from Fairway Drive is relatively simple, through adjacent land owned by one or more of the applicants. If the remainder is ever to be subdivided or developed with a residence, access would be from Fairway Drive.

CITY OF EUREKA
TRAFFIC/SIGNALS DIVISION
Dan Moody, Traffic Operations Manager

531 K Street • Eureka, California 95501-1146
Ph (707) 441-4180 • *Fx* (707) 441-4202 • dmoody@ci.eureka.ca.gov

MEMORANDUM

To: Sidnie Olson, Senior Planner

Thru: Brent Siemer, City Engineer

Thru: Gary Boughton, Assistant City Engineer

From: Dan Moody, Traffic Operations Manager

Subject: Lundbar Hills Unit No. 6

Date: January 25, 2006

Recommendation:

Accept the findings of the Final Traffic Study for Lundbar Hills, Unit 6, by Walter Sweet, CE. Our Department has no other recommendations to make regarding traffic issues.

Background

On January 11, 2006, we received a copy of the Final Traffic Study for Lundbar Hills, Unit 6, by Walter Sweet, CE. This report addresses the concerns that were expressed in our August 22, 5005 comments. On December 20, 2005, Gary Boughton and I met with Mike O,Hern, Bob Barnum and Bill Barnum to discuss the abbreviated traffic study for this project and the City's comments on the original study. The most significant issues were sight distance and available gaps for traffic exiting from Lundblade Drive onto Fairway Drive and the adequacy of the length of the left turn lane from Fairway onto Lundblade Drive. In the Final Traffic Study the author of the study addressed these issues by stating, "In my opinion, sight distances for drivers stopped on Lundblade Drive are adequate..." and "In my opinion, the left turn lane will remain adequate for future increases in traffic." Suggestions are made in the study for increased signing to emphasize the speed limit, which is 30 mph.

Sight distances at the Lundblade/Fairway intersection as shown within the traffic study do not to meet the national standards for "Intersections with Stop Control on the Minor Road". The traffic study shows a measured sight distance to the east of the Lundblade/Fairway intersection as 265 feet with an 85th percentile speed of 40 mph. The

2001 AASHTO Green Book recommends a minimum sight distance for a vehicle making a left turn from a minor street with stop controls onto a major street with a prevailing speed of 40 mph as 445 feet. The traffic study also shows the measured sight distance to the west as 348 feet with an 85th percentile speed of 38 mph. The AASHTO recommended sight distance for a right turn with a prevailing major street speed of 38 mph is between 335 and 385 feet.

There is little opportunity to improve sight distance to the east of this intersection as the crest of the roadway restricts the sight distance. Sight distance to the west of the intersection can be improved by trimming vegetation along the south side of Fairway Drive.

Collision history at this intersection does not indicate sight distance problems. Looking back through collision reports between 1992 and 2005, I could not find any collisions at the Lundblade/Fairway intersection that were related to lack of sight distance. There were no reported collisions involving vehicles exiting Fairway Drive with Lundblade Drive traffic.

The City has received complaints regarding the speed of traffic on Fairway Drive and obstructions growing into the sight triangles. After receiving such complaints the vegetation is trimmed to allow improved sight distance.

The traffic study recommends that considering the favorable accident record at the Lundblade/Fairway intersection that no changes should be made. It also recommends periodic reviews and assessments of traffic conditions on Fairway Drive.

WB Sweet
CIVIL ENGINEERING • SURVEYING • GEOLOGY

January 9, 2006

Mr. Robert Barnum and Mr. Fred Lundblade, Jr.
P.O. Box 1425
Eureka, CA 95502

TRAFFIC STUDY FOR LUNDBAR HILLS SOUTHWOOD SUBDIVISION, UNIT 6

INTRODUCTION

This report is prepared to serve as a traffic study for Lundbar Hills Southwood subdivisions in south central Eureka. It is intended particularly to address Unit 6, which will complete development of Lundbar Hills Subdivisions.

STREET SYSTEM

Access to and from this area is Lundblade Drive, a paved two-lane street, which terminates at Fairway Drive, an arterial city street from the south center of Eureka proceeding southwesterly to State Highway 101 south of Eureka.

Lundblade Drive is and will continue to be the focal area for all traffic to and from Lundbar Hills. From its three-way intersection at Fairway Drive, Lundblade Drive is a winding street, maximum grade 15%, for about 700 feet before reaching the first residences. There are vehicle access restrictions along this 700-foot length, and this area is not available for parking. The next 300 feet of Lundblade Drive includes a four-way intersection with Boyle Drive, a local street, with residences adjacent to streets. The remaining length of Lundblade Drive has dedicated right-of-way widths of 60 feet and 62 feet, with a proposed additional length of about 1,850 feet, terminating at the easterly limit of Unit 6. All additional existing and proposed streets are local streets intersecting with Lundblade Drive.

TRAFFIC VOLUME

A traffic count was taken on Lundblade Drive south of Fairway Drive from noon on Wednesday, June 29, 2005, to noon the next day. There were 1,380 vehicles recorded, 752 entering the subdivision and 628 leaving. The peak hourly traffic was from 5 p.m. to 6 p.m., when 92 vehicles entered and 44 vehicles left.

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8222 Bishop St.
Ventura, CA 93004

WALTER B. SWEET, INC
Walter B. Sweet, C.E. Principal
John Bulinski, C.E. Principal

On that date the Lundbar Hills residential area consisted of 173 lots, including Lots numbers 1 through 164 plus nine parcels created by minor subdivisions. The number of residences is several fewer, with some houses located on more than one lot, and with a park and water tank located within the subdivisions.

The above traffic count calculates to 8.0 trips per lot per day. Using the more generally accepted figure of 9.5 ADT (average daily trips), the estimated ADT for the full development of Lundbar Hills and Lundbar Hills Southwood subdivisions is 2,175 ADT (9.5 x 229). This figure is consistent with the 1981 traffic study figure of 2,316 ADT when a greater number of lots were estimated for full development of Lundbar Hills. Based on the increased number of lots (56), our estimated increase in traffic along Lundblade Drive is 25 per cent. The increased traffic along Fairway Drive due to 56 more lots in Lundbar Hills is discussed below.

Traffic volumes can be accommodated by Lundblade Drive, a collector street, and by other local streets. Traffic along Fairway Drive, measured in October 2004, shows weekday averages of 4,592 northbound vehicles and 4,771 southbound vehicles. The 56 lots for Unit 6, based on an ADT of 9.5, could increase these numbers by as much as 532 daily trips along Fairway Drive, or 5.75% of the 2004 total of 9,260 trips. Based on traffic counts for Lundblade Drive of 8.0 ADT, this increase would be 4.84%.

Fairway Drive offers minimal opportunities for residential development. Appreciable increase in traffic along Fairway Drive is forecast due to expected increased congestion on downtown Eureka thoroughfares.

TURNING MOVEMENTS

All intersections within Lundbar Hills and Lundbar Hills Southwood, present and proposed, are at approximate right angles, and consist of three or four streets. Traffic entering or crossing Lundblade Drive can be expected to stop at intersections with Lundblade Drive. Stop signs are installed at intersections with Lundblade Drive to more firmly establish expected driving habits for drivers continuously using the area and to aid occasional drivers who have not become used to the area.

The intersection of Lundblade drive with Fairway Drive is a three-way intersection, which can be expected to remain a three-way intersection indefinitely. Traffic entering Lundblade Drive uses a left-turn lane painted full width for a length of 208.5 feet, sufficient for storage of nine or ten vehicles. Distances were measured on October 3, 2005 by Michael O'Hern, Land Surveyor.

Traffic flows along Fairway Drive as observed on a City of Eureka monitor show breaks in northbound traffic sufficient to require storage of fewer vehicles than the nine or ten now provided. In my opinion, the left turn lane will remain adequate for future increases in traffic.

From a vehicle stopped at Lundblade Drive, a driver has a sight distance of 348 feet to his (her) left for northbound traffic. Based on the 85th percentile speed of 38 miles per hour (mph), or 56 feet per second (fps), six seconds is available for Lundblade Drive drivers to turn right with a clear sight. For drivers in the left turn lane, the same six seconds are available when the northbound lane of Fairway Drive is clear.

For drivers stopped on Lundblade Drive planning on turning left onto Fairway Drive, the sight distance is measured at 265 feet, looking north. With the 85th percentile speed of 40 mph, or 59 fps, 4.5 seconds are available to turn left with clear sight in both directions. A stop sign for vehicles leaving Lundbar Hills is at the intersection with Fairway Drive. It is suggested that additional speed limit sign(s) be placed along Fairway Drive. Greater attention for driving at the speed limit would increase available time for turning movements.

In my opinion, sight distances for drivers stopped on Lundblade Drive are adequate, as described above. Recent observations as a passenger in a car turning left on to arterial streets across one lane of traffic were timed at two to three seconds for left turns. Less time is needed for right turns.

TRAFFIC ACCIDENTS

The City of Eureka Traffic Collision History Report at the intersection of Lundblade and Fairway Drives for the five-year period of June 30, 1999, to June 30, 2004, states a total of four collisions. Three of the four were non-injury collisions. One collision resulted in non-fatal injury(ies) caused by driving under the influence.

EMERGENCY ACCESS

This study continues to anticipate and recommend that Lundblade Drive remain the access to Lundbar Hills subdivisions, Units 1 through 6. This will complete development of lands held by the Lundbar Hills partners.

Access for emergency vehicles can be protected by reducing the likelihood of temporary closures of Lundblade Drive in the area from Fairway Drive to the first intersection within the subdivision at Boyle Drive. This area has no residences, but does contain trees overlooking Lundblade Drive. It is recommended that trees be removed that have a potential for falling onto the street. Recommendations from a state-licensed forester should be obtained. To best retain stability for the slopes supporting the street, stumps should remain, with trees cut at or above ground level, not excavated.

Numerous recent studies and reports indicate that a secondary access for Unit 6 is not feasible. The City Fire Code, in this instance, allows the Fire Chief to accept additional fire protection measures as an alternative to a secondary access. See memorandum from Rick Bennett, Fire Marshal, to Sidnie Olson, City Planner, copy enclosed. See also the report by Kelly-O'Hern Associates, Project Information, Lundbar Hills, Unit 6, revised March 2, 2005, copy enclosed. Reference is also made to a

memorandum from Gary Boughton, Deputy City Engineer, to Rick Bennett, Fire Marshall, Lundbar Hills Subdivision Unit 6, Previous Discussion re: Secondary Access, dated March 13, 2003. Reference is made also to Secondary Access Feasibility Study, Discussion Draft, prepared by Kelly-O'Hern Associates and Forsyth Engineering, dated August 31, 2004.

RECOMMENDATIONS

I recommend that Lundblade Drive be the principal street for all development of your parcels through Unit 6. Local streets can each serve a few blocks, which are directed to Lundblade Drive. Stop signs should be installed for local streets at intersections with Lundblade Drive, to encourage the use of Lundblade Drive for vehicles making trips longer than a few blocks. Right-of-way for the extension of Lundblade Drive should be 62 feet, and rights-of-way for local streets should be 50 feet. Right-of-way for Lundblade Drive should extend to the easterly limit of Unit 6, to allow vehicles access to other potential parcels.

The intersection of Lundblade Drive with Fairway Drive should be left as it is. Traffic flows can continue to be handled by the existing installation. Development of Unit 6 would increase traffic on Lundblade Drive by 25 per cent. Increased traffic generated by Unit 6 would increase traffic along Fairway Drive by a smaller percentage. Another major consideration for this recommendation is the favorable accident record. As long as traffic continues to pass safely through this intersection, no changes should be implemented.

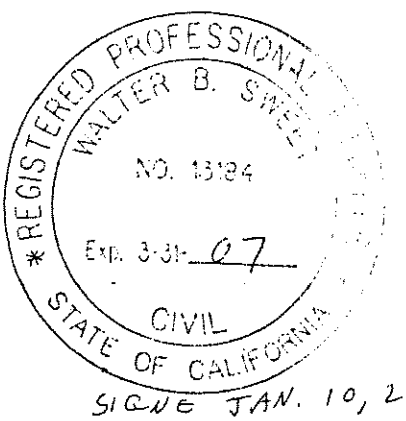
I recommend that trees along the 700-foot length of Lundblade Drive be monitored for potential for falling, as discussed earlier in this report.

I recommend periodic reviews and assessments of traffic conditions of Fairway Drive, as may affect Lundbar Hills subdivisions entry and streets.

Report prepared by:

Walter B. Sweet

Walter B. Sweet, Civil Engineer
R.C.E. 13184
License expires 3-31-07



SIGNE JAN. 10, 2006

Enclosures

CITY OF EUREKA

531 K Street • Eureka, California 95501-1146

CITY MANAGER • (707) 441-4144
fax (707) 441-4138

May 25, 2005

RECEIVED
MAY 25 2005
DEPARTMENT OF
COMMUNITY DEVELOPMENT

Fred H. Lundblade, Jr.
C. Robert & Patricia B. Barnum

Subject: ***Lundbar Hills, Unit No. 6***
Case No: SD-03-003
Can and Will Serve Letter of Commitment

Dear Fred H. Lundblade, Jr. and C. Robert & Patricia B. Barnum:

The City has received your application for a major subdivision of property located east end of Lundblade Drive (APNs 301-031-039 and 301-031-038) into 56 lots and a remainder. The property has Zoning & General Plan Designations of One-Family Residential; Low Density Residential. The lots range in size from 6,500 square feet to 49,900 square feet.

By this letter, the City of Eureka is committed that it can and will serve this project with water service and wastewater disposal.

Sincerely,

David w. Tyson,
City Manager

Cc: Sidnie Olson, Senior Planner
Kevin Hamblin, Community Development Director
Mike Knight, Public Works Director / Building Official
Brent Siemer, City Engineer

CITY OF EUREKA
COMMUNITY DEVELOPMENT DEPARTMENT
Kevin R. Hamblin, AICP, Director

Sidnie L. Olson, AICP, Senior Planner
531 K Street • Eureka, California 95501-1146
Ph (707) 441-4265 • Fx (707) 441-4202 • solson@ci.eureka.ca.gov

MITIGATION MONITORING/REPORTING PROGRAM (MMRP)

This Mitigation Monitoring/Reporting Program (MMRP) has been prepared for the project described below in conformance with Section 21081.6 of the California Environmental Quality Act (CEQA) and Section 15097 of the CEQA Guidelines.

SCH #: 2006082100

PROJECT TITLE: ***Lundbar Hills Subdivision, Unit No. 6***

PROJECT APPLICANT: Fred Lundblade, Jr, and Robert & Patricia Barnum

CASE NO: SD-03-003; V-03-013; LLA-03-003; C-06-008

PROJECT LOCATION: Lundbar Hills Subdivision near the intersection of Dickson Drive with Lundblade Drive; APN 301-031-039; 301-281-038

ZONING: Single Family Residential (RS-6000);
GENERAL PLAN DESIGNATION: Low Density Residential (RL)

PROJECT DESCRIPTION: The applicants are requesting approval of a subdivision, variance, lot line adjustment and conditional use permit that would facilitate the construction of Lundbar Hills Subdivision, Unit No. 6; which is the final phase of the Lundbar Hills Subdivision. Unit No. 6 would consist of 56 new lots ranging in size from 6,500 square feet to 49,900 square feet with a remainder parcel of about 8.5 acres. All but five lots will exceed 7,000 square feet.

The subdivision would extend Lundblade Drive to the east curving south to the south property line; and it would extend Dickson Drive to the South then to the east to intersect back with Lundblade Drive near the southeast corner of the property. Twenty lots would front on the extension of Lundblade drive, 23 lots would front on the extension of Dickson Drive, and 13 lots would be served by a new cul-de-sac, Kathleen Court, which will intersect with Lundblade Drive and extend to the north.

New construction on Lots 178 & 179 uphill and to the rear of 5110 and 5120 Lundblade Drive would include engineering to remedy any existing surface runoff that crosses those properties.

Unit No. 6 would require approval of one variance to allow a reduced lot depth for Lot 170. The Zoning Regulations specify a minimum lot size of 6,000 square feet with a minimum lot width of 60' and minimum lot depth of 100 feet. Lot 170 would have

a lot size of about 7,800 square feet, a lot width of about 100' and a lot depth of about 80'.

The applicant is requesting approval of a condition use permit that would allow timber harvesting of about 12 acres of previously logged land for roadway construction and building site preparation purposes. Approximately 250,000 board feet of timber would be removed. The timber harvest will also require approval by the California Department of Forestry and Fire Protection of a Timber Harvest Plan.

The project also includes a lot line adjustment that would transfer about 4,650 square feet from Unit No. 6 (APN 301-031-039) to 4829 Dickson Drive (APN 301-281-038). The property at 4829 Dickson Drive is currently about 8,350 square feet and after the lot line adjustment would be about 13,000 square feet. The Director of Community has authority for approving or denying the lot line adjustment; the Director approved the lot line adjustment on January 9, 2007.

INTRODUCTION: On January 8, 2007, the above described project was approved by the Planning Commission of the City of Eureka; mitigation measures were made a condition of project approval. The purpose of this MMRP is to ensure that the mitigation measures adopted in connection with project approval are effectively implemented. This MMRP establishes the framework that the City of Eureka and others will use to implement the adopted migration measures and the monitoring and/or reporting of such implementation.

CEQA provides that the City of Eureka may choose whether the MMRP will monitor mitigation, report on mitigation, or both. "Reporting" generally consists of a written compliance review that is presented to the decision making body or authorized staff person. A report may be required at various stages during project implementation or upon completion of the mitigation measure. "Monitoring" is generally an ongoing or periodic process of project oversight. There is often no clear distinction between monitoring and reporting and the program best suited to ensuring compliance in any given instance will usually involve elements of both. The choice of program may be guided by the following:

(1) Reporting is suited to projects which have readily measurable or quantitative mitigation measures or which already involve regular review. For example, a report may be required upon issuance of final occupancy to a project whose mitigation measures were confirmed by building inspection.

(2) Monitoring is suited to projects with complex mitigation measures, such as wetlands restoration or archeological protection, which may exceed the expertise of the City of Eureka to oversee; are expected to be implemented over a period of time; or, require careful implementation to assure compliance.

(3) Reporting and monitoring are suited to all but the most simple projects. Monitoring ensures that project compliance is checked on a regular basis during and, if

necessary after, implementation. Reporting ensures that the City of Eureka is informed of compliance with mitigation requirements.

ENFORCEMENT: In accordance with CEQA, the primary responsibility for making a determination with respect to potential environmental effects rests with the City of Eureka rather than the monitor or preparer of the CEQA documents. As such, the City of Eureka is identified as the primary enforcement agency for this MMRP.

PROGRAM MODIFICATION: After adoption of this MMRP, minor changes to this MMRP are permitted but can only be made by the City of Eureka. The Director of Community Development, after consultation with affected Departments or Agencies, may make minor modifications to this MMRP. If, for any reason, any mitigation measure specified in this MMRP cannot be implemented due to factors beyond the control of the owner/developer and/or the City of Eureka, at a noticed public hearing before the Planning Commission of the City of Eureka substitution of another mitigation measure may be approved. In no case shall deviations from this MMRP be permitted unless this MMRP continues to satisfy the requirements of Section 21081.6 of CEQA, as determined by the City of Eureka.

SUMMARY OF POTENTIAL PROJECT IMPACTS: Below is a table that summarizes the impact potential for each category of impact as identified and analyzed in the Initial Study.

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
I.	**Aesthetics**		✓		
II.	**Agricultural Resources**				✓
III.	**Air Quality**		✓		
IV.	**Biological**		✓		
V.	**Cultural**		✓		
VI.	**Geology and Soils**		✓		
VII.	**Hazards and Hazardous Materials**		✓		
VIII.	**Hydrology and Water Quality**		✓		
IX.	**Land Use and Planning**			✓	
X.	**Mineral Resources**			✓	
XI.	**Noise**		✓		
XII.	**Population**			✓	
XIII.	**Public Services**		✓		
XIV.	**Recreation**			✓	
XV.	**Transportation and Traffic**		✓		
XVI.	**Utilities & Service Systems**		✓		
XVII.	**Mandatory Findings of Significance**		✓		

MMRP IMPLEMENTATION TABLE: To assure that this MMRP is effectively implemented the following pages establish the framework that the City of Eureka and others will use to implement the adopted migration measures and the monitoring and/or reporting of such implementation. The following abbreviations will be used in the MMRP table:

ACOE ..... Army Corps of Engineers
AQMD ..... Air Quality Management District
BD ..... City of Eureka Building Department
BMP ..... Best Management Practice(s)
CCC ..... California Coastal Commission
CCR ..... California Code of Regulations
CDD..... Community Development Department
CDFG ..... California Department of Fish & Game
CEQA ..... California Environmental Quality Act
CGC ..... California Government Code
City ..... City of Eureka
ENG..... City of Eureka Engineering Department
ESHA..... Environmentally Sensitive Habitat Area
MND ..... Mitigated Negative Declaration
PRC ..... Public Resources Code
PW..... City of Eureka Public Works Department
RWQCB..... Regional Water Quality Control Board

MITIGATION MEASURE NO. 1. Any exterior lighting, other than street lights on public roads, shall be low, fully shielded, directional lighting that will focus light on the project parcel, and specifically away from the adjacent gulch greenway, neighboring residences, and roadways, to minimize off-site light and glare effects to the satisfaction of the City of Eureka.
Timing for Implementation/Compliance: The street lighting fixture design/details shall be shown on the Improvement Plans.
Person/Agency Responsible for Monitoring: City of Eureka Community Development Department and applicants.
Monitoring Frequency: Once to review plans; once after construction is completed to assure compliance.
Evidence of Compliance: Exterior lighting is not creating a substantial glare beyond property-lines or onto the adjacent gulch greenway, neighboring residences, or roadways.

MITIGATION MEASURE NO. 2. The applicant, at all times, shall comply with Air Quality Regulation 1, Chapter IV to the satisfaction of the North Coast Unified Air Quality Management District (NCUAQMD). This will require, but may not be limited to: (1) covering open bodied trucks when used for transporting materials likely to give rise to airborne dust; and (2) the use of water or chemicals for control of dust in the demolition or construction operations, the grading of roads or the clearing of land.

Burning will be done at times when winds will carry smoke away from residences and are consistent with the NCUAQMD guidelines. Brush and slash should be chipped for spreading on-site or removal.
Timing for Implementation/Compliance: During timber harvest activities, grading, and construction of the subdivision.
Person/Agency Responsible for Monitoring: NCUAQMD and applicants.
Monitoring Frequency: Continuous during timber harvesting, grading and construction of the subdivision.
Evidence of Compliance: All ground disturbing activities comply at all times with the NCUAQMD standards.

MITIGATION MEASURE NO. 3. No disturbance to wetland areas at the bottom of the drainage shall occur.
Timing for Implementation/Compliance: During grading and construction of the subdivision.
Person/Agency Responsible for Monitoring: City of Eureka and applicant.
Monitoring Frequency: Continuous during timber harvest activities, grading, and construction of the subdivision.
Evidence of Compliance: Timber harvest activities, grading, construction of the subdivision and stormwater management are conducted so that there is no disturbance to wetland areas at the bottom of the drainage.

MITIGATION MEASURE NO. 4. Construction of the Lundblade Drive extension road and detention facility will include sediment control measures (rock energy dissipaters, rock check dams, etc.) that will provide a more stable and functioning gulch and ensure protection from sedimentation to downstream wetlands.
Timing for Implementation/Compliance: During construction of the Lundblade Drive extension and detention facility.
Person/Agency Responsible for Monitoring: The City of Eureka Engineering Department and/or Building Department and applicant.
Monitoring Frequency: Once to review plans; once after construction is completed to assure compliance. Ongoing compliance checking during winter months.
Evidence of Compliance: Visual inspection confirmation that the sediment control measures are effectively protecting against sedimentation of downstream wetlands.

MITIGATION MEASURE NO. 5. If any area of cultural deposits is discovered during the course of the project, as required by law, all work shall cease and a qualified cultural resources specialist shall be contacted to analyze the significance of the find and formulate further mitigation (e.g. project relocation, excavation plan, protective cover). And, pursuant to the California Health and Safety Code Section 7050.5, if human remains are encountered, all work must cease and the County Coroner contacted.
Timing for Implementation/Compliance: During timber harvest activities, grading, and construction of the subdivision.
Person/Agency Responsible for Monitoring: The applicants.
Monitoring Frequency: Continuous during timber harvest activities, grading, and construction of the subdivision.
Evidence of Compliance: If discovered, cultural deposits are protected/not disturbed until evaluated by appropriate entities.

MITIGATION MEASURE. NO. 6. All activities of this project site shall comply with the recommendation of the Preliminary Engineering Geologic and Geotechnical Investigation report prepared by SHN Consulting Engineers and Geologists, Inc, August 2002. These include activities associated with: (1) site preparation and grading, (2) structural foundations, (3) slabs-on-grade, (4) retaining walls, (5) sub-drains, and (6) drainage and erosion. If a new or revised Engineering Geologic and Geotechnical Investigation report is prepared, the recommendations of the new or revised report shall be followed. This mitigation measure shall be completed to the satisfaction of the City.
Timing for Implementation/Compliance: Reviewed for compliance during individual building permit review as well as during timber harvesting, grading and construction of the subdivision improvements.
Person/Agency Responsible for Monitoring: City Engineer and Building Dept. to review, applicant to assure compliance.
Monitoring Frequency:; Continuous during timber harvest activities, grading, and construction for erosion control, especially after rain events; once after completion of the subdivision to assure compliance and at the building permit application level
Evidence of Compliance: Field check by Engineering Dept prior to recording each phase of the Final Map; Building permit approval, inspections; then visual/lack of complaints.

MITIGATION MEASURE NO. 7. During project construction, if there is any evidence that indicates contaminated soils are present on the site, either from visual observations or odors indicative of regulated substances, the applicant shall be responsible for performing soil sample analyses. The findings of the survey shall be submitted, as applicable, to the Regional Water Board (RWQCB) and any other appropriate regulatory agencies. The applicant shall comply at all times with the requirements and regulations of the RWQCB, DTSC, and other agencies with regard to the handling, transport, and disposal of hazardous materials such as contaminated soils to the satisfaction of the applicable agencies.
Timing for Implementation/Compliance: During timber harvest activities, grading, and construction of the subdivision.
Person/Agency Responsible for Monitoring: Building permit inspections, RWQCB, City of Eureka, and the applicants.
Monitoring Frequency: Continuous during excavation, grading, and construction of the subdivision.
Evidence of Compliance: Any and all hazardous substances are identified, handled, transported and disposed of in compliance with state law and RWQCB standards.

MITIGATION MEASURE NO. 8. To mitigate potential impacts to water quality and waste discharge requirements to less than a significant effect, applicant shall secure a Storm Water and Pollution Prevention Plan (SWPPP), prior to the commencement of any construction activities. The applicant shall provide a copy to the City Community Development Department.
Timing for Implementation/Compliance: Reviewed during timber harvest activities, grading, and construction of the subdivision and once construction is completed.
Person/Agency Responsible for Monitoring: City Engineer to review; RWQCB and applicant to assure compliance.

Monitoring Frequency: Continuous during timber harvesting, grading and construction; on-going once construction is finished, especially after rain events.
Evidence of Compliance: SWPP Plan review; then visual/lack of complaints.

MITIGATION MEASURE NO. 9. To mitigate the potential for storm water to carry additional pollutants from the project site, good housekeeping including maintenance and cleaning of the construction staging area(s) shall be on a regular basis. No debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete washings, oil or petroleum products, or other organic or earthen material from construction operations shall be allowed to enter or be placed where it can enter the Martin Slough. All erosion control measures and handling of petroleum products will be followed as specified in the SWPPP. Best Management Practices (BMP)'s will be implemented during all phases of construction.
Timing for Implementation/Compliance: Reviewed during timber harvest activities, grading, and construction of the subdivision and once construction is completed.
Person/Agency Responsible for Monitoring: City Engineer to review; RWQCB and applicant to assure compliance.
Monitoring Frequency: Continuous during timber harvesting, grading and construction; on-going once construction is finished, especially after rain events.
Evidence of Compliance: Field verified during Improvement Plan Inspections; then visual/lack of complaints.

MITIGATION MEASURE NO. 10. Hours of construction activities shall be limited to daylight hours, generally from 8:00 a.m. to 5:00 p.m., Monday through Saturday. The hours of construction may be allowed to be increased with prior approval from the City Community Development Director based on an expressed need by the contractor.
Timing for Implementation/Compliance: During timber harvesting, grading and construction.
Person/Agency Responsible for Monitoring: Applicants/City of Eureka
Monitoring Frequency: Continuous during timber harvesting, grading and construction.
Evidence of Compliance: No construction occurs beyond the times and days approved by the City of Eureka/lack of complaints.

MITIGATION MEASURE NO. 11. Installation of waterlines to the south property line sized to provide for services for the future extension of Lundblade Drive shall be constructed to the satisfaction of the City.
Timing for Implementation/Compliance: Reviewed as part of improvement plan approvals and when construction is completed.
Person/Agency Responsible for Monitoring: City Engineer to review, applicant to assure compliance.
Monitoring Frequency: At the improvement plan review; during construction; after construction to assure compliance.
Evidence of Compliance: Plan review; visual inspection after completion.

MITIGATION MEASURE NO. 12. Continuation of Lundblade Drive to the south property line, constructed at the same width as previous units of Lundbar Hills shall be constructed.

Timing for Implementation/Compliance: Reviewed as part of improvement plan approvals and when construction is completed.
Person/Agency Responsible for Monitoring: City Engineer to review, applicant to assure compliance.
Monitoring Frequency: At the improvement plan review; during construction; after construction to assure compliance.
Evidence of Compliance: Plan review; visual inspection after completion.

MITIGATION MEASURE NO. 13. Fire hydrants as specified by the Fire Marshall shall be installed.
Timing for Implementation/Compliance: Reviewed as part of improvement plan approvals and when construction is completed.
Person/Agency Responsible for Monitoring: City Engineer, Eureka Fire Department, and applicant.
Monitoring Frequency: At the improvement plan review; during construction; after construction to assure compliance.
Evidence of Compliance: Plan review; visual inspection after completion.

MITIGATION MEASURE NO. 14. Each home shall have an NFPA 13D compliant automatic fire sprinkler system for the house and garage, installed to the satisfaction of the City Fire Department.
Timing for Implementation/Compliance: Reviewed during improvement plan review, subsequent building permit applications, during construction, and once construction is completed.
Person/Agency Responsible for Monitoring: City Engineer, Eureka Fire Department, Building Official, and applicant.
Monitoring Frequency: At the building permit application level; during construction; after construction to assure compliance.
Evidence of Compliance: Plan review; visual inspection after completion.

MITIGATION MEASURE NO. 15. All construction will be provided with a Class A rated roof and roof assembly.
Timing for Implementation/Compliance: Reviewed during building permit applications, during construction, and once construction is completed.
Person/Agency Responsible for Monitoring: City Building Official, Eureka Fire Department and applicant.
Monitoring Frequency: At the building permit application level; during construction; after construction to assure compliance.
Evidence of Compliance: Plan review; visual inspection after completion.

MITIGATION MEASURE NO. 16. All construction shall have non-combustible siding.
Timing for Implementation/Compliance: Reviewed during building permit applications, during construction, and once construction is completed.
Person/Agency Responsible for Monitoring: City Building Official, Eureka Fire Department and applicant.
Monitoring Frequency: At the building permit application level; during construction; after construction to assure compliance.

Evidence of Compliance: Plan review; visual inspection after completion.

MITIGATION MEASURE NO. 17. Stop signs shall be installed for local streets at intersections with Lundblade Drive. Right-of-way for the new segment of Lundblade Drive shall be 62 feet, and rights-of- way for new local streets shall be 50 feet. Right-of-way for Lundblade Drive shall extend to the easterly limit of Unit 6.
Timing for Implementation/Compliance: Reviewed during improvement plan review and once construction is completed.
Person/Agency Responsible for Monitoring: City Engineer and applicant
Monitoring Frequency: At the application level; during construction; after construction to assure compliance.
Evidence of Compliance: Plan review; visual inspection after completion.

MITIGATION MEASURE NO. 18. The applicant shall assure that no construction materials, debris, or waste be placed or stored where it may be subject to erosion and dispersion; Any and all debris resulting from construction activities shall be immediately removed following completion of construction; concrete trucks and tools used for construction be rinsed at the specified wash-out area(s); and staging and storage of construction machinery and storage of debris on any public street rights-of-way will require an encroachment permit.
Timing for Implementation/Compliance: During timber harvest activities, grading, and construction of the subdivision. Subsequent review during building inspections.
Person/Agency Responsible for Monitoring: Applicants and the City of Eureka
Monitoring Frequency: Continuous during timber harvest activities, grading, and construction of the subdivision. Building official to check during building permit inspections.
Evidence of Compliance: Visual inspection/lack of complaints.

MITIGATION MEASURE NO. 19. For potable water supply, if needed, the applicant will either add an additional booster pump or up-size the existing one in order to provide the minimum *gpm* and *psi* to the new lots to the satisfaction of the City Public Works and Engineering Departments.
Timing for Implementation/Compliance: Reviewed during improvement plan review, during construction, and once construction is completed.
Person/Agency Responsible for Monitoring: City Public Works, City Engineer, and applicant.
Monitoring Frequency: At the application level; during construction; after construction to assure compliance.
Evidence of Compliance: Plan review; inspection after completion.